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HOME FLORICULTURE

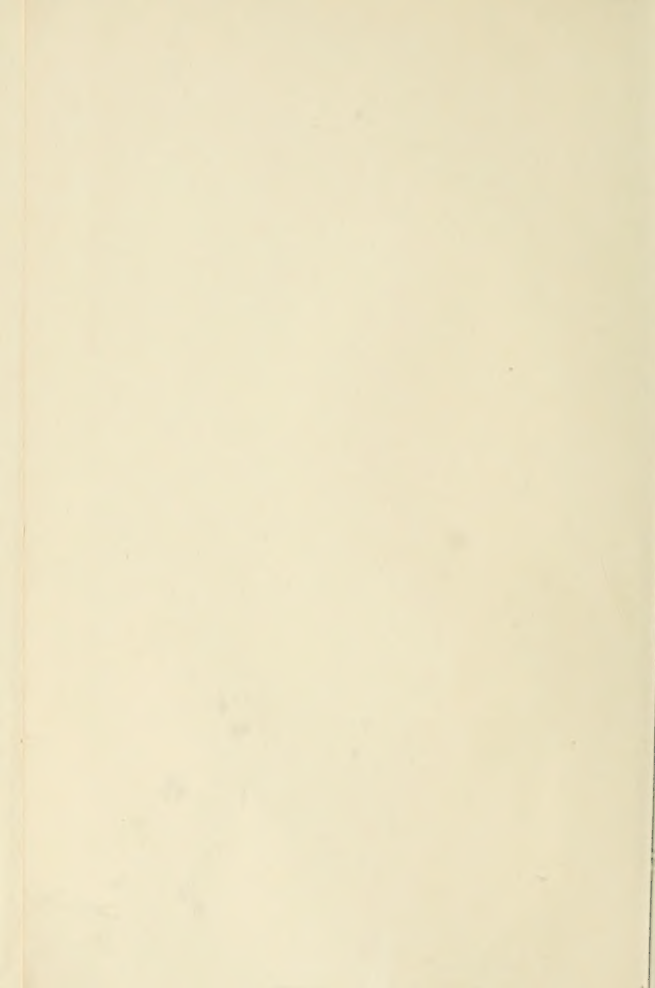
EBEN E. REXFORD

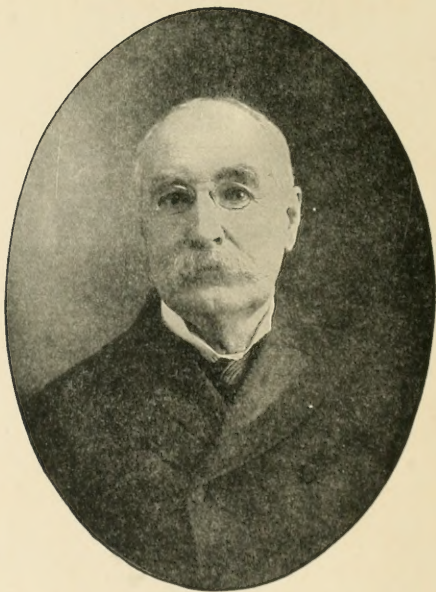


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Yours very truly,
Eben E. Rexford,

Home Floriculture

*A Practical Guide
to the treatment of*

FLOWERING *and* OTHER ORNAMENTAL PLANTS

*In the House and
Garden*

By EBEN E. REXFORD

Illustrated

New York
ORANGE JUDD COMPANY
1916



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BY WAY OF INTRODUCTION

This book is a book for amateur floriculturists written by one who is in no sense a "professional." It has been written because there is a constant and increasing demand for a work that treats on flowers from the standpoint of the amateur. An extensive correspondence with flower-loving persons, all over the country, has convinced me that scientific text books are not what is wanted.

What is wanted is plain, practical, easily understood information which will enable those who love flowers, but know very little about them, to grow them successfully. I have confidence enough in the book to believe that those who read it will find it easy to understand and that those who follow out its instructions will be able to grow all the plants treated in it and grow them well.

It has been written from my own personal experience among flowers and not from theory. My way may not be the best way. I do not claim that. I judge it simply by its results, which have been very satisfactory to me.

I do not desire to have it understood that I send out this book as a sort of short cut to complete floricultural knowledge. It is simply intended to assist the amateur in the acquirement of such a knowledge which can only come from intelligent personal study and observation which will lead to a better acquaintance and a closer friendship with

Our Friends, the Flowers.

EBEN E. REXFORD.

Shiocton, Wis, January, 1903.

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HOME FLORICULTURE

CHAPTER I

SOIL FOR PLANTS IN POTS

Two mistakes are to be avoided by the amateur floriculturist. That of thinking that plants in pots will grow well in any kind of soil is one of them. This idea originates from an observation of the comparatively satisfactory development of plants in the garden, whose soil seems to be of only ordinary fertility. If plants do well in such a soil, when grown in the garden beds, why will they not do as well in the same soil, in a pot, the amateur asks himself. He sees no reason why they should not. But the fact is, *they will not*. Out in the garden they are growing under natural conditions, where they get the benefit of fresh air, and dew, and sunshine, and can attract to themselves nutriment from all sides. The result is far different from what it would be if we were to attempt to grow plants in this soil, in pots, because, in the latter case, all conditions are changed materially. To grow plants well in pots the soil must be rich, and the amateur, to be successful, must not make the mistake of thinking that any soil will answer the purpose.

The other mistake is this: That each plant must have a soil specially prepared for it. It may be

advisable to adapt the soil to the nature of the plant grown in it, to some extent, in special instances, but, as a general thing, nearly all plants advisable for house culture will do themselves full justice if given the same kind of soil. The plants that fail to do this, in any really good soil, are the exceptions which prove the rule. But because they *will* do this is no good reason why they should be *obliged* to do it if we can grow them more satisfactorily by giving them the kind of soil they have an especial liking for.

Right here the question may come up in the mind of the amateur florist, How am I to know just what kind of soil a plant likes best? To this I would answer, that we cannot know, positively, until we have had some experience with the plant, but an examination of its roots will generally give us a pretty good idea of the character of the soil best adapted to it. If a plant has few roots, and those are large ones, as a general thing, a rather close, firm soil will suit it better than a light, spongy one. Those having hard, wiry roots, like the Rose, nearly always prefer a soil containing considerable clay—one that will make itself firm and compact about the roots. Plants like *Primula obconica*, and Heliotrope, whose roots are almost hair-like in their fineness, do much the best in a light soil containing a good deal of fibrous matter, or, if that is lacking, a liberal proportion of sand, which will prevent the heavier elements from packing down under the action of water, and becoming uncomfortable compact and impenetrable.

The best general purpose soil I have ever used was made as follows: One part ordinary garden loam; one part turfy matter scraped from the lower part of sods, containing all the fine grass roots possible to secure with it; one part of well-rotted manure and sand, half and half. If leaf mold can be obtained, it can be used

instead of the turf scrapings. We hear a great deal said about its superiority over other light and spongy soils, but there is really but very little difference between it and turfy soil, since both are composed largely of vegetable matter. In one case, leaves decay, and furnish food for plant growth, and in the other the grass roots rot and supply nutriment. Leaf mold gives more immediate effects, because it is already decayed, while turf soil must have time in which to decay before it is fully available.

I have spoken of well-rotted manure. That from the cow yard is best, and it should be so old as to be black and friable. On no account should fresh manure be used. It will always injure a plant. Hen manure is too strong, unless used in small quantities. If used at all, it should be experimented with carefully. Horse manure is too heating. Guano is better, but care must be exercised in the use of it, as its strength is not always alike, therefore no hard-and-fast rule as to the quantity to be mixed with the soil can be given. Finely-ground bone meal I have found to be the best substitute, all things considered, for old cow manure. It is rich in the elements of plant growth, is easily obtainable by those who would find it difficult to procure barnyard manure, is pleasant to handle, and perfectly safe, provided it is not used in excessive quantities. A pound of it to the amount of soil that would fill a bushel basket would make the compost very rich, and I would advise using a smaller quantity to begin with. Watch the effect on the plants grown in the soil containing it. If they do not take on the luxuriant growth you would like to have them, small quantities of the bone meal can be added to the soil in the pots by digging it in about their roots. Personally, I prefer it to cow manure, for the reason that worms are never bred in the soil from it, while

the use of barnyard fertilizers is almost sure to introduce worms which cannot be got rid of easily.

The use of any fertilizer must be attended with caution. An overdose of food often kills a plant. A plant in too rich a soil gets a sort of vegetable dyspepsia, because it is unable to digest properly the strong food given it, and the result of its continued use brings on a debilitated condition from which death ultimately ensues. It is a safe plan to have the soil of only moderate richness, and supply stronger food from time to time, as the plant indicates a need for it. In this way we grow our best plants. Their development can be made steady and healthful under such conditions, while too rich a soil forces a rapid, weak growth which is sure to give us unhealthy plants.

Many cannot understand why it is necessary to add sand to the soil for pot plants. The reason for using it is this: The soil in a pot is quite likely to become heavy from repeated waterings. In a heavy, compact soil the roots do not have a good chance to grow. The air which they require is not admitted readily. If sand is mixed with the other portions of the compost, it makes it light, friable and porous. It allows the water to run through readily, and where the water can move in this way the air can find its way in. If you use good, sharp sand in your potting soil you will seldom find it becoming sour, if drainage is provided. If you do not use it, you will often find it soggy and sticky, and in most cases where it is discovered to be in this condition you will see that the plant in it is not growing well. Examine the roots and you will be pretty sure to find that many of the young and delicate ones are decaying. When this takes place, disease is pretty sure to follow rapidly. More plants are lost from neglect in preparing a light and porous soil than from any one other cause. I

think. I would omit the manure from the compost rather than the sand, if I could have but one.

If you do not require your compost for immediate use, it is a good plan to pile it up in some corner of the garden and allow the vegetable matter in it to decay thoroughly. Stir it well from time to time. Let the air get to all parts of it. When you have soap suds pour them over it. Add to it whatever you think will increase its nutritive qualities. In a short time you will have a supply of soil in which the most aristocratic plant ought to grow well. It is well to keep a supply on hand. You will need it all through the year if you have many plants. Often a plant requires repotting in winter, but because there is no soil at hand it is allowed to remain in its old pot and by the time the soil required can be obtained, the plant is injured permanently. Therefore put a box of good soil in the cellar in the fall, to use as occasion requires during the winter. Always aim to be prepared to give your plants such attention as they may need, *when* it is needed. In order to do this you must look ahead a little, and understand what attention they are likely to require.

In potting plants, where a compost prepared as advised above is used, it may easily be varied to suit the different plants you propose to grow in it. That is, if the roots of a plant indicate a liking for a somewhat heavy soil, add some loam containing clay to it. If they seem to require a very light, porous soil, add more turfy matter, leaf mold, or sand. From this, the reader will understand that the soil prepared as advised forms a basis for soils of varying degrees of heaviness or lightness, and that these qualities are readily obtainable by the use of proper material.

It is often difficult, and sometimes impossible, to procure such a soil as that recommended above. But

on this account do not forego the pleasure of growing flowers. Get the best soil you can, and give the plants the best possible care, and you will often be surprised at the result. The love of flowers seems to have a good deal to do with success. Where this exists, there will be nothing left undone to make conditions as favorable as possible for them. The plants seem to understand what is being done for them, and respond by doing their best to reward their owner for the care and attention given. To grow flowers well, you *must* love them. If you have not this feeling for them, do not attempt their cultivation, for your attempts will surely end in failure.

CHAPTER II

POTTING

When you get ready to pot plants, the first thing to do, if your pots are new ones, is to put them to soak in a tub of water. Unless this is done, and the pores of the clay are full of water when the soil is put into them, the moisture will be quickly drawn from it, and the plant will suffer from lack of water before you are aware that there is not enough to supply its needs.

Provide a quantity of broken crockery, old brick, anything which can be put into the bottom of each pot to the depth of an inch or two and keep the soil above it from running down and filling up the hole in the bottom of the pot, where surplus water is supposed to escape. Do not make this material for drainage too fine. Let the pieces be about an inch square, or like nut coal.

Some persons seem to think that it is unnecessary to provide drainage. I have often heard it said that it "was all a whim." Not so. The practice is founded on good, sound, philosophic principles. Give the water a chance to drain away from the soil and it follows that only as much will be retained as the plant growing in it requires. If good drainage is provided the water will not remain and sour the soil, as it pretty surely would if no escape was furnished for the water that the soil would not naturally take up. Only a certain quantity can be retained in soils which have natural drainage, and we always aim, in plant culture, to come as near to the natural way of things as possible.

Another reason for providing drainage is this: Many persons are very careless about watering their plants. Often they apply so much that the soil is saturated all through, and they do not wait for this to evaporate or be got rid of in some other way, but perhaps the next day they repeat the operation. If there is no drainage, such a course of treatment will soon result in disease among your plants, but with good drainage, the danger of overwatering is avoided in a great degree. Therefore, be sure to see that all pots over four inches across are drained well. Smaller pots do not require it, because there is but little soil in them, and evaporation is much more rapid than from a larger pot.

When you get ready to pot a plant, fill the pot to within an inch or two of the top with the loose soil, and give it a jar to settle it somewhat. Then remove some from the center, and in this hollow set the roots of the plant, taking care to have them spread out naturally. Sift the loose soil down among them, jarring the pot from time to time to firm the soil well. When nearly full, press down with the hand, and then water thoroughly to settle the soil. It is not a good plan to have the pot full to the rim of soil, because the water which is applied will run off before enough is taken up by the soil to penetrate to all portions of it. Have the earth about an inch below the rim when well settled.

In repotting old plants, remove as much as possible of the old soil without disturbing the roots too much. Some shake all the old soil off the roots, but I find that a plant starts much sooner and does a great deal better if the roots in the center of the ball of earth in which they have been growing are not interfered with. Roots must take hold of the fresh soil before the plant can become thoroughly estab-

lished in its new quarters. If all are disturbed, the plant receives too severe a check, because it will be some time before they are in a condition to take up nutriment; but if a part of them are left undisturbed, these can feed the plant while the others are taking hold of the fresh soil.

In shifting plants, it is not advisable to change from a small pot to one more than one or two sizes larger. It is better to make frequent shifts. Do not repot till the roots have filled the ball of earth and formed a network of white fibers all around the outside of it. You can readily ascertain when this has been done by turning the plant out of the pot. Invert the pot over the left hand, with the stalk of the plant between your fingers. Then give the pot a sharp rap against something to loosen it from the soil. The plant can then be slipped out readily without disturbing the roots in the least. Do not think that this injures the plant, for it does not.

A great mistake is made by many amateurs in giving too large pots. They think a small pot means starvation to the plant because it will not contain a sufficient amount of earth to feed a plant well. This is not true of small plants. They have few roots, and a small amount of soil will meet all their requirements until these roots have enlarged and fill the pot. Then repot. If you put a small plant in a large pot it cannot make use of all the nutriment in the soil, and as there is nothing else to share it, the poor little plant is overfed—fed to death, often. A young plant from a cutting should not have a pot larger than three inches across the top. Plants bought from florists in spring are generally from pots of that size, and they are almost always in strong, healthy condition, after having been grown in these small pots the greater share of the winter. This proves that a young plant does not require a large pot.

A pot six or seven inches across the top is quite large enough for ordinary window plants. A Geranium will bloom better in a pot of this size, when a year old, than it would in a larger one. One containing more soil would be likely to produce a more luxuriant growth of leaf and branch, but would give fewer blossoms. It is a fact that a plant blooms better, as a general thing, when somewhat cramped for root room. But all plants grown for their foliage require a liberal amount of soil, because with them flowers are not what is aimed at, but a vigorous development of branches to furnish leaves. Bearing this in mind, you would give your flowering Geraniums rather small pots, while you would give a Rose Geranium a pot several sizes larger, one being grown solely for its flowers, while the other is only satisfactory when it has a large amount of fine foliage. From this I think you get the idea governing the use of large and small pots.

After potting a plant give it a thorough watering, as has been said, to settle the soil, but do not give more until it shows signs of starting into growth, unless the weather is very warm and evaporation takes place rapidly. It is always well to set newly potted plants in a shaded place until they become well established in their new pots. It may take two weeks for them to do this. Shower them daily. Moisture on the foliage often seems to do as much good as water at the roots, and it is especially beneficial to a plant when it is suffering the shock which the most careful potting is likely to give to some varieties which do not take kindly to a change of this sort.

If you have good soil for your plants, I would not advise a complete repotting oftener than once a year. Give this just before they make the strong growth

of the season. Some months later, remove a portion of the soil from the pot and give fresh earth in its place. This will keep the plant in good growing condition. If it seems suffering from lack of nutriment, give some of the fertilizers treated of in a later chapter. We are beginning to understand that by the use of these, in an intelligent way, much of the need of frequent repotting can be done away with. This subject will be considered farther on.

CHAPTER III

WATERING PLANTS

Some persons water their plants every day, without regard to the season, and give just about the same quantity one day that they do another. The natural result is that in winter their plants are weak and spindling, with yellow leaves, and few if any flowers. The owner will tell you that she "don't see what ails her plants. She is sure she gives them all the water they need, and she never forgets to do this." If she were to forget to do this occasionally it would be a great deal better for the plants. In summer the evaporation of moisture from the soil is rapid, because of warmth and wind, but in winter this goes on slowly, and the amount of water given should be regulated by the ability of the soil to dispose of it. Where too much is given, as has been said in the chapter on potting, the soil is reduced to a condition of muddiness, unless good drainage has been provided, and those who give too much water generally neglect this item.

Another woman will give water in little dribbles, "whenever she happens to think of it." The result is that her plants are chronic sufferers from lack of moisture at the roots. The wonder is that they contrive to exist. Turn them out of their pots and you will generally find that the upper portion of the soil is moist, and in this what few roots there are have spread themselves, while below it the soil is almost as dry as dust, and no root could live there. Plants grown under these conditions are almost always dwarf and sickly specimens, with but few leaves, and most of these yellow ones. You will find that plants grown

under either condition are much more subject to attacks of insects than healthy plants are.

There is only one rule to be governed by in watering plants, that I have any knowledge of, and that is this: Never apply water to any plant until the surface of the soil looks dry. When you do give water, give enough of it to thoroughly saturate the soil. If some runs through at the bottom of the pot, you can be sure that the whole ball of earth is moist.

I follow this rule with good results. Of course, like all other rules, it has exceptions. For instance, a *Calla*, being a sort of aquatic plant, requires very much more water than a *Geranium*. A *Cactus*, being a native of hot, dry climates, requires but very little. The florist who is interested in his plants will study their habits, in order to understand the requirements of each, and will soon be able to treat them intelligently. He will soon be able to tell at a glance when a plant requires more water. He will know what kinds to give a good deal to, and what kinds to water sparingly. Until he has acquired this ability it is well for him to adhere to the rule given above, for if he follows it he cannot go very far wrong in either direction. Let the water used be of about the same temperature as that of the room in which the plants are. I am often asked which is best, hard or soft water. I have tried both, and see little difference.

Many persons fail to attain success with plants in baskets and window boxes. Ninety-nine times out of a hundred, the failure is due to lack of water. A basket is exposed to dry air on all sides, and is suspended near the ceiling, as a general thing, where the air is much warmer than below, consequently evaporation takes place more rapidly than from the pot on the window sill. Because it is somewhat difficult to get at, water is not given as often as

required, and then generally in smaller quantities than is needed. The first thing you know, your plants are turning yellow, and dropping their leaves, and soon they are in such a condition that you throw them away in disgust, and conclude that you haven't "the knack" of growing good basket plants. All the trouble comes from an insufficient water supply.

There are two methods by which you may make it easier to attend to the needs of these plants. One is, to have the baskets suspended by long cords running over pulleys, by which you can lower them into a tub of water, where they can be left until they are thoroughly soaked through. The other is this: Take a tin can and punch a hole through the bottom of it. Let this hole be large enough to allow water to escape, drop by drop. Set this on top of your basket and arrange the foliage to cover it.

If the hole is not as large as it ought to be, the soil will not be kept moist all through. In this case, make it larger. A little observation will enable you to regulate matters in such a manner as to secure just the flow of water needed. By the "tin-can method" of watering basket plants, the trouble of watering in the ordinary way will be done away with, and the results will be extremely satisfactory.

Plants can be grown nearly as well in the window box as in the open ground if enough water is given to keep the soil moist, all through, at all times. The "little-and-often" plan, spoken of in this chapter, will lead to dismal failure in the care of window boxes. Apply at least a pailful of water every day, in warm weather. If this is done there need be no failure. If those who have failed, heretofore, will bear this in mind, and follow the advice given, they may have window boxes that will make their windows beautiful during the entire summer, with very little trouble.

CHAPTER IV

CARE OF PLANTS IN THE WINDOW

In order to grow plants well, in the house, they must have plenty of light. Unless this can be given, they will be spindling and weak, and there will be few, if any, flowers, and these will be inferior.

The best exposure is a southern one; the next best an eastern one. A south window is the one in which to grow Geraniums, Lantanas, Heliotropes, and all plants fond of much sunshine, while the eastern one is better for Begonias, Fuchsias, and such plants as care more for the sun in the early part of the day than they do for it after its rays become more intense. A west window gives too much heat unless shaded considerably, but it is better than no window at all, and if you have no other to give your plants, don't go without them. A curtain of thin muslin will temper the heat greatly, and vines can be trained over the glass in such a way as to break the fierceness of the sun's rays. A north window is not suited to the needs of flowering plants, but some which are grown solely for foliage can be kept there. Ferns, Palms, *Aspidistra*, *Ficus* and *Lycopodiums* will do quite as well there as in a window exposed to the sun. English Ivy can be trained about it. *Tradescantia* in baskets can be hung up in it, and thus it can be made beautiful without flowers if you have a love for "green things growing."

One often sees weak, scraggly plants in the sitting room windows. They seem to have grown too rapidly to be healthy. Two things combine to bring this about: Lack of fresh air and too much heat.

If you want fine plants—and if you really love flowers you want nothing else—you must give them plenty of air. They breathe, as you do, and without fresh air they pine and become diseased, the same as you would under similar conditions. You occupy the same room, it is true, without suffering as much as your plants appear to, but you are not confined to it all the time, as they are. You get air when you go out of it. They are obliged to stay in it. Always have your window arranged in such a manner that it can be lowered at the top, thus letting a stream of pure air blow in over the plants. If storm sash is used, have a hole in the bottom of the outside sash, and another in the top of the window sash. When these holes are open, a stream of fresh air will rush in below, flow up between the two sashes and enter the room through the hole in the top of the window sash. These holes can be left open the greater part of the day, but should be closed at night. Opening doors from the hall, or some adjoining room into which air can be admitted from without, will let in a supply which your plants will appreciate fully. Never let a stream of *cold* air blow directly on them, however. Aim to have the cold air mix with the warm air of the room before it reaches them.

The air of the living room is generally kept too warm and dry for plants, as well as the human occupants of the room. About seventy degrees during the day time and fifteen degrees less at night would suit such plants as one finds in ordinary collections.

Aim to keep the temperature as even as possible. Too great heat forces a weak growth, and has a tendency to blast any buds that may form.

In a room where the air is warm and dry, the red spider will do deadly work. In order to keep him at bay, the plants must be given as much moisture

as possible. Keep a vessel of water on the stove, to evaporate. Shower the plants daily. If the pots are used without saucers, the table on which they stand, or the shelves, can be covered with an inch of sand which can be kept in place by tacking cleats along the edge of the stand. This sand will take up and retain the water which runs through the pots, and thus a steady moisture will be given off from it, for there will be constant evaporation taking place. Keep the air of the room in which plants are kept as moist as possible, if you want to grow strong, healthy plants. This is a very important item, and should not be neglected.

Showering daily helps to keep the foliage clean; and unless the dust, which settles on the plants when sweeping the room, is cleared away, the pores of the leaves become clogged, and the plant finds it difficult to breathe, for the pores of the leaves are really the lungs of the plant.

In a moist atmosphere many plants can be grown which would die in a dry air, and all plants do so much better where there is plenty of moisture in suspension that the amateur who wants his plants to do their best will aim to supply it. It has often been observed that fine plants are often found growing in the kitchen, while those in the parlor are sickly. The explanation of this is: The kitchen air is moist, because of the cooking, washing, and other work of that kind going on there, while the parlor air has all the moisture extracted from it by intense stove and furnace heat which there is no moisture to modify.

Stir the soil in the pots at least once a week. An old fork is a good tool to do this with. This allows the air to penetrate to the roots, and keeps weeds from getting a start. Keep all dead leaves picked off, and remove fading flowers. It is a good plan to cover

your plants with a thin sheet, or a newspaper, when sweeping. It is another good plan to remove them to the kitchen at least once in two weeks, and give them a thorough washing. This helps to keep down insects, and prevents them from becoming incrustated with dust.

By all means provide yourself with one of the brass syringes (Fig 2) or elastic plant sprinklers



FIG 2—PARLOR SYRINGE

(Fig 3) for sale by dealers in florists' goods. With one of these you can throw a strong stream or a spray



FIG 3—ELASTIC PLANT SPRINKLER

of water over and among your plants, and apply it effectively, which you cannot do if you depend on a

whisk broom for a sprinkler. A "sprinkler" is not what you need, but something that has force enough



FIG 4—FOUNTAIN PUMP

to take the water in all directions, and in such quantities, and with such volume, as the case may require. For specially constructed plant rooms, or conservatories, the fountain pump (Fig. 4) is best suited.

Turn your plants at least twice a week so that they will get the sun and light on all sides. This prevents their becoming drawn to one side, as they will be sure to do if not turned frequently. Don't neglect to do this if you want good-shaped specimens. And be sure to give all the light possible; don't shut it out from the window where you have plants, by curtains or lambrequins. Let your plants furnish the beauty for the window. Some are afraid of letting in the sunshine upon their plants because it will fade the carpet. If you care more for your carpet than you do for your flowers, give them to some one who is willing to do the fair thing by them, and concentrate your energies on the protection of the precious carpet, but don't attempt to compromise matters between the two, for this will surely result in failure, so far as your plants are concerned.

CHAPTER V

THE PROPAGATION OF PLANTS

Most window plants are propagated from cuttings, or "slips." A cutting is a piece of branch. If the lower end is inserted in soil, the branch, if in proper condition, will form roots, and in this way you obtain a new plant. By proper condition is meant the condition of the wood at the time the cutting is taken. It should not be of too recent a growth, neither should it be of too old a growth. The cutting, if too "green," is likely to decay before roots can be formed; if too old, roots often refuse to start. A "happy medium" between the two stages of plant growth should be sought for in selecting cuttings. Let the branch be firm, but not tough. If, when you bend it between your fingers, it seems inclined to break, and yet does not, it is in about the fit condition to "strike." This is not laid down as a rule to go by, but it indicates as accurately as any test that can be given the amateur, the proper condition of the wood of most plants from which it is desired to take cuttings. Study and observation of the characteristics of plants will enable a person to tell at a glance which cutting to take and which to reject, but it is a difficult, if not an impossible, matter to make this clear in words.

I always start cuttings in clear sand. Take a shallow dish—a soup plate is as good as anything—and fill it with the cleanest sand you can find. Let it be somewhat sharp and gritty, rather than fine, for if *too* fine it will become like mud when wet. Insert your cuttings in it, letting the ends of them reach down through it and come in contact with the plate. Water,

giving enough to make the sand thoroughly wet all through, and aim to keep it in this condition. Set in a warm place. A sunny window answers very well. If you allow the sand to get dry the young roots will be injured, if not killed, and the result is that you are quite likely to lose your cutting by your neglect to



FIG 5—SAUCER PROPAGATION

give the proper care. Most cuttings will start roots in a week, but they should not be taken from the sand for at least two or three weeks. When young leaves are put forth freely you may know that it is safe to transfer the young plant to a pot. This method of propagation is shown in Fig 5.

Such plants as the Bouvardia and Chrysanthemum can be propagated easily by making division of the roots, and this method is to be preferred to taking cuttings of them. Geraniums will grow if the end of the cutting comes in contact with any kind of soil. Heliotropes start easily, as do Fuchsias, Lantanas, Pelargoniums and Abutilons. The Carnation is propagated most surely by layering. This method consists in bending down a branch without severing it from the parent plant, and inserting it, at the bend, in soil. It is well to give the branch a little twist, or to about half cut through it at the place where the bend is. This cut, or fracture, interrupts the flow of sap in some degree, and leads

to the formation of roots with more certainty than would be the case if it were not made. When roots have been formed the young plant can be cut away from the old one, and put in a pot by itself.

The Rex Begonia and Gloxinia can be propagated by the leaves. Take a leaf of either plant, make a



FIG 6—BEGONIA LEAF PRODUCING YOUNG PLANTS

few cuts across the thick ribs on the back of them, and then lay them on damp sand. Soon roots will form, and by and by you will have plants from them, as seen in Fig 6.

Sometimes, when *Dracaenas* and *Ficuses* become too tall for the window, the owner would be glad to shorten them, but hesitates about cutting off the top,

fearing that branches will not form along that portion of the stalk which is left. In such cases I would advise this treatment: Cut into the stalk, on each side, where you want roots to form, making the cut upward, and about one-third across, one cut a little below the other. Then crowd sphagnum moss into the clefts made, and bind some of it about the plant, at that point. Keep it wet. By and by roots will form. After these have grown through the moss, the top can be severed from the parent stalk, and potted in soil. Success depends on the constant moisture of the moss. Allow it to get entirely dry and in all probability your attempt will end in failure.

CHAPTER VI

TRAINING PLANTS

The Abutilon, Chrysanthemum, Fuchsia, and many other shrubby plants suitable to culture in the window garden, can be trained in various ways to suit the taste of the owner. You can have them like miniature trees, or as shrubs. If you prefer the tree shape, let a straight stalk grow to the height of two or three feet. Allow no branches to start along this stalk. When it has reached the height where you want the head to form, cut off the top. In a short time branches will be likely to start along the stalk, but all of these except a few at or near the top must be rubbed off. Let these which you leave make a growth of four or five inches, and then nip the ends of them off. This will induce branches to start at nearly every leaf. In this way, by keeping up the "nipping" or "pinching-in" process, you can force as many branches to grow as will be required to form a bushy, compact head. The Abutilon and Chrysanthemum are especially adapted to this manner of training. Some of the stout-growing Fuchsias, like Rose of Castile, make fine little trees, but most varieties are too slender in habit to grow satisfactorily in this form.

If you prefer a shrubby plant, with branches from the pot up, you must begin your pinching-in while the plant is small. Nip off the top when five or six inches of growth has been made. Four or five branches will probably start below. If these are nipped off when they have grown long enough to have half a dozen leaves each, they will throw out branches, and thus you secure a bushy plant, which, to my

mind, is more satisfactory than one trained in tree form.

Geraniums, unless given a good deal of attention in the first six months of their growth, will become awkward looking plants, and it will be impossible to bring them into good shape later. You must begin with the young plant if you want to make it symmetrical. Symmetry is not the only result of proper pinching-in. If you force it to branch freely, as you can by persistent nipping off the ends of the branches until you have a dozen or more starting near the base of the plant, you will have much greater flowering surface than a plant left to train itself will ever develop. Sometimes plants obstinately refuse to branch as you want them to, but don't despair of success, and don't give up to them and let them have their way. Convince them by persevering in your treatment that you mean to make them come to your terms. They will be anxious to grow, and when they find that they cannot make growth to suit themselves, they will give in to you, and grow as you want them to. You must have patience with them, and persevere in your efforts, and be kind to them. Ultimately your reward will come in the shape of a fine plant, regular in outline, well branched, and with plenty of healthy foliage and beautiful flowers.

Sometimes a branch will outgrow the other branches on a plant. As soon as you notice an inclination to do this, check it by nipping it back. This will give the other branches a chance to catch up with it before it gets a fresh start. It may be necessary, at times, to cut off the branch. It is better to sacrifice it wholly than to allow it to take to itself the greater share of the vitality of the plant.

Fuchsias, being for the most part slender growers, require a support of some kind. The most satisfac-

tory one I have ever used was made as follows: A rod of about one-half-inch round iron had three prongs like those of a fork welded to one end of it. These prongs, after being welded to the rod, were bent out



FIG 7—A TASTEFULLY ARRANGED PLANT WINDOW

at right angles from it, and then given a square downward bend. When these were inserted in the soil they held the rod rigidly in place, because of their bracing against each other, and of the "grip" which they got on the soil. The upper end was punched full of small holes, and through these a small wire was run

in an irregular fashion. The bends or curves in the wire projected for a foot or more on all sides. Through and over these wires the branches of the plant were trained in such a manner that they received all the support they required without being given any appearance of stiffness or primness, which is almost always the result of training this plant on the ordinary trellis. The ends of the branches had a natural droop to them, and the wire supports were unnoticed after being painted green.

The Ivy can be trained about the window, as shown in Fig 7, and along the ceiling, or made to cover screens with a wealth of beautiful foliage, if care is taken to interlace the branches smoothly as they develop. This is a most tractable plant, and one of the old favorites, which no collection is complete without.

CHAPTER VII

INSECTS AND HOW TO FIGHT THEM

Whoever has plants must expect to have them attacked by insects. Good care and constant attention will do much toward keeping these enemies away, but at times they make desperate efforts to secure possession of your pets, and often they succeed in doing it before you are aware of their presence. As soon as you discover them go to work to get rid of them, and do not relax your efforts until you feel sure that the last one is put to rout. After that be vigilant, and see that they are kept at bay, on the principle that an ounce of prevention is worth a pound of cure.

The aphid, or plant louse, is the pest most familiar to those who have but few plants. It breeds with wonderful rapidity. You may see a few to-day. Next week you will find many plants literally covered with aphides. Therefore, when you discover one lose no time in declaring war against this enemy. The lice suck the juices from tender plants and soon permanently injure them. If left to carry on their work they will kill them.

Until within a few years past fumigation with tobacco was considered the most effective means of getting rid of this pest. But most women objected to it because its fumes sickened them, and the odor of the weed clung to everything in the house for days. In greenhouses it is still used to some extent, but even there it is being superseded by other, and less troublesome methods. An extract of nicotine is on the market which is of such strength that a spoonful or two of it, added to a pailful of water, furnishes us

with a most effective weapon against the aphid. It can be syringed over infested plants, or they can be dipped in it. This is the best way in which to make use of the tobacco principle in fighting insects, but it is open to the objection of being unpleasantly odoriferous, and many women tell me they cannot make use of it.

I have come to depend entirely on a homemade insecticide in fighting the aphid. I shave a quarter of a pound of the ordinary Ivory soap in use in most households, or readily obtainable anywhere, into thin pieces. These I cover with water and set on the stove to melt. When liquid, I add to a pailful of water. Into this I dip my plants. If they are large ones, I prepare a larger amount of soap and water, keeping to the proportions named above, and use it in a tub sufficiently large to accommodate my plants. I find this bath most effective. Aphides are killed and no plant is ever injured. It costs but little, is pleasant to prepare and handle and is always at hand. A good many professional florists to whom I have recommended it tell me that they have used it with unvarying success, and prefer it to anything else they have tried in fighting the aphid. This insecticide is also effective against the thrip and the mealy bug.

One of the most destructive insects with which the owners of plants have to measure weapons is the red spider. He does his most effective work in rooms where the air is hot and dry. He is a tiny creature, and often his presence is unsuspected. The leaves of the plants begin to turn yellow, and a sickly look pervades the collection. The real cause of the trouble is not understood until you happen to see, on the underside of a leaf, a little web. Examine it closely and you will see little atoms looking more like a grain of cayenne pepper than anything else. Watch them

closely and you will see them move. Then you will know that it is the ravages of this little but powerful insect which has given your plants such a woe-begone look.

The only antidote for the red spider that I have ever found effective is—water. "Only this, and nothing more." This insect will not stay where there is much moisture. If you apply water to your plants daily, putting it on with a syringe, and throwing it well up among the foliage, so that it reaches the underside of the leaves where the spider lurks because the leaf over him acts as a sort of umbrella which protects him from falling water, you can soon rout him. But this treatment must be thorough, and it must be kept up, for if you abate your efforts he will soon return. Use every means in your power to keep the air moist at all times. But rely on showering to drive him away when once established. Be sure to remember what has been said about getting the water to the underside of the leaf. In greenhouses, where the plants are syringed often, the spider is seldom found because the air is charged with so much moisture at all times that it is not pleasant for him. This condition cannot be secured in the living room, but much can be done to do away with the dryness usually found there. Sometimes I think the spider a blessing in disguise, for the water which you apply to your plants in fighting him is an important item of success in the culture of them, and were it not for the fight you wage they might not get it.

The other two principal enemies of house plants are mealy bug and scale. The mealy bug looks like a tiny bit of cotton. The scale is a smooth, flat creature, adhering closely to the surface of such smooth leaved plants as the Ivy, Lemon and Oleander. Both are destructive. Lemon or fir-tree oil will rout them more

effectively than anything else I have ever tried, though the soap insecticide advised for the extermination of the aphid will do good work against the mealy bug if you are sure to get it where he lurks. Scale, however, does not succumb to it so readily, and it becomes necessary to use something stronger to rout this formidable enemy of Palms and other smooth leaved plants, and of many kinds of Fern, especially the Sword varieties, which are now so extensively grown. Let me say, in this connection, that the scale on Ferns is generally somewhat different in shape from that on such plants as the Palm—so much so that some persons hardly think it possible for them to be of the same family. Palm scale is generally small, and quite flat, sometimes white, sometimes brown. Fern scale is generally plump and well rounded on its upper part, and is almost always brown, or greenish-brown, in color and considerably larger than the sort found on harder foliaged plants. The use of either of the oils named will rout this enemy. Directions for the preparation of the wash accompany them. Apply with a soft rag, or a brush stiff enough to remove the insect after the application has done its work. Use this bath frequently, after you have rid your plants of the pest, to prevent its return.

CHAPTER VIII

CARE OF HOUSE PLANTS DURING SUMMER AND FALL

House plants should not be put out of doors at the North before the first of June. Cool nights and late frosts are of frequent occurrence through the month of May north of New York City, and whoever puts plants out very early, as many do, may wake up some morning and find them nipped.

The question is often asked: What is it best to do with our plants during summer? Whether to keep them on the veranda, to sink the pots containing them in the ground, or turn them out of their pots. I have tried all three ways, and from my experience I would advise the amateur to keep the plants in pots, in some sheltered place, through the summer months. It is true that plants in pots will require more attention than they would if planted out. But the advantages are, that you have them where they will require more or less care, and, knowing this, you will not be likely to neglect them. And when fall comes, your plants are in the pots, and there is no lifting and potting to be done, a process which always results in a severe check to a plant at the very time when it ought to be steadily going ahead. I spoke of neglect. Right here let me say that it never pays to neglect a plant. You may save a little in labor by doing so, but you lose in the development of the plant, and I never advise any method of caring for plants which would encourage neglect.

Most persons seem to think that it doesn't much matter how plants are carried over the summer. They

have an idea that about all that is necessary is to keep them alive till fall. Then they will take them in hand and make satisfactory plants of them for winter use. This is all wrong. The summer is the time in which to make preparations for the winter campaign. If you want fine plants in winter you must make them fine plants before winter comes. If you neglect them in summer you will find that it is too late to get them in condition for winter work in fall. It will take nearly all winter to get a plant which has been neglected in summer in good condition, and by the time you have accomplished this, if you succeed in doing so, which is doubtful, it will be about time to put it out of doors. But if your plants begin the winter in strong, healthy condition, you may reasonably expect a great deal from them if you give them proper care.

Plants intended for winter use ought to be given a good deal of care during the summer. They must be encouraged to make satisfactory growth. They must be pinched in to produce plenty of branches to give flowering surface, and to make them compact and symmetrical. You are to remember that you are now laying a foundation for what you hope to realize, later on. Your aim should always be to have them in the best possible condition at all times, and your summer's work must be done with reference to the future. Never expect much from plants, in winter, which were "poor specimens" in fall. If you do, quite likely you will be disappointed.

If plants are "plunged," which is the term gardeners use when they mean that the pots containing the plants are sunk in the earth up to their rims, they are pretty sure to suffer. The soil about the roots, inside the pot, will become much drier than that about the pot, on the outside of it, for, though most pots are porous, they do not admit moisture in sufficient

quantity to keep the earth in them moist enough to meet the requirements of the young and delicate roots. This difficulty can be overcome by daily applications of water, but the fact is that plunged plants are pretty sure to be neglected because the soil *about* them seems moist, and the fact of lack of moisture *inside* the pot is lost sight of, or not understood. They are also likely to be injured by wind and sudden storms, and if care is not taken to put a layer of wood or coal ashes under the pots—and this will not be done once in ten times, I presume—worms will effect an entrance through the hole in the bottom. And in nine cases out of ten, you will find when you come to take up the plants in fall, that they have sent roots down through this hole, and these roots, which are young and strong ones, must be broken off to the injury of the plant in a greater or less degree.

In turning plants out of their pots and planting them in the open ground, the owner avoids the care necessary to give them when kept in pots, and may feel confident of the vigorous growth they will be pretty sure to make. But when cold weather approaches, and the plants have to be taken up and potted, a "change will come o'er the spirit of his dream." It will then be found that the roots have spread far and wide about the plants. The little plant from a four-inch pot will have made such a surprising increase of roots that a peck measure would not contain them all, and of course it is out of the question to give them such large pots as really seem necessary. In trying to reduce the earth about them to fit the pots in which they are to be placed it will be found that most of the large roots have to be cut away, and all the others disturbed more or less. In cutting away these strong, feeding roots, and expos-

ing the others, the plant receives a violent shock from which it will take it months to recover.

Of course, after cutting off some of the roots, the top must be cut back correspondingly, or the plant would be likely to die, for there will not be sufficient root action to support all the old branches. If cut back at the roots, new roots will have to be formed before growth can take place. The plant must first become re-established. You will readily see, therefore, that when this plan is pursued you have, in fall, at the very time when the plant should be at its best—strong, vigorous, and able to stand the change from out to indoor conditions—a plant getting, or trying to get, a fresh start; a plant that has received a shock, whereby its vitality is greatly weakened. The change from out to indoor life will be so abrupt and so decided that it will be still further weakened by it. Out of doors, in fresh air, and under natural conditions, it might recover much sooner; but the close living room, with its dry air, and great heat, will hasten the down-hill tendency of the plant, and it is not to be wondered at that so many die in fall when brought into the house. Of course, if plants could be taken up without disturbing the roots, this method of summering them would be a good one, because they grow so much better and are more robustly healthy in the open ground than when kept in pots. But as it is utterly impossible to take them up without disturbing the roots, I would not advise planting them out in summer.

I would advise keeping house plants during summer on a veranda with eastern or northern exposure. If you have only a southern or western one, give a screen of lattice or vines. The sun will burn many tender plants exposed to it from noon to three o'clock. An eastern or northern exposure is preferable, because

no screen will be required, and therefore there will be a freer circulation of air. The heat will also be much less intense. Water daily, and give a liberal quantity to all plants which you want to make a vigorous growth. If some are needing rest—as will be the case with most winter blooming kinds—give less—just enough, in fact, to keep the earth from getting so dry that the plant will wilt. Go over your plants once a week, and when you see a branch getting the start of the others, nip it off. If a plant persists in growing tall and “leggy,” cut the top off, and keep on doing this until branches start along the stalk. Now is the time to make your plants assume the bushy, compact shape you will want them to have when removed to the house in winter. Stir the soil in the pots once a week. If fresh soil was given in spring, do not give any fertilizer. You do not want to force the growth at all—simply to keep it growing steadily and healthily.

When the time comes to take in your plants, do not make the change from out to indoors an abrupt one, as many do. They put them in the sitting room window and seem to take it for granted that that is all that is necessary. Not so. The plants have had plenty of fresh, cool air out of doors, and if denied this all at once, they pine and suffer. Give them all the fresh air possible for days after putting them in the house. Keep them as cool as possible. It is better to put them in a room where there is no fire, at first. Accustom them to the change between out and indoor conditions as gradually as possible. Don't be abrupt about it if you want your plants to do well. I often am told by amateurs that their plants were budded when brought in, but the buds turned yellow and fell off in a week or two, and they don't understand the cause of it. It almost always happens

because the plants are kept too warm and get very little fresh air, after being brought into the house—in other words, there is too abrupt and violent a change in conditions, and the shock is so severe that they are unable to overcome it, and in consequence they drop their buds.

CHAPTER IX

FERTILIZERS

Most plants need a fertilizer of some kind, at certain periods. But care must be taken in the use of them. They should never be given to a plant in a dormant condition, or to a sickly one. The resting plant will be excited by it, and efforts in the direction of growth will be made prematurely. It will act on the sickly plant very much as rich food acts on a debilitated person, and aggravate diseased conditions, instead of assisting in the restoration of health. A plant should be growing, or beginning to grow, before any fertilizer is applied to it.

Liquid manure is greatly advised. The formula for preparing it is this: Take dry manure—from the cow yard, preferably—and pour hot water over it. This will soak into and soften the material, and by and by, when more water is applied, some will run away at the opening in the lower part of the barrel or box used, and this is the liquid manure you are to make use of. It should be diluted, if dark in color, until it has the brown tint of rather weak table tea. Never use it when almost black, because that indicates greater strength than the ordinary plant can stand. This can be applied to plants like the Chrysanthemum, and others which are gross feeders, as often as once a week if they are in soil of only ordinary richness. For most plants, however, once in ten days or two weeks will be often enough to use it. Rapid development is not desirable. Rather a steady, but vigorous and healthy growth.

If cow manure or other fertilizer has been mixed with the soil in which your plants are growing, no other fertilizer will be needed until the plants have nearly exhausted the nutritive elements in the soil. When the leaves of a growing plant become smaller and smaller, as they are produced, and it loses its vigor in the development of stalk and branch, it is safe to conclude that more food is needed. The use of fertilizers makes it unnecessary to repot plants oftener than once a year. Indeed, by using them judiciously, plants can be kept in the same soil, for a much longer period, in perfect health, as good fertilizers furnish the elements of plant growth in a condensed form and in such a manner as to be readily assimilated by all plants. Plants about to come into bloom will be greatly benefited by the application of a reliable fertilizer. It will increase the size of the flowers and intensify their richness of color.

Ammonia is frequently advised as a fertilizer. Those who advise its use do not understand the difference between a stimulant and an application containing the elements of plant growth. These will be found in all reliable fertilizers, but ammonia simply stimulates a plant to greater activity, temporarily, without furnishing any real food.

Bone meal is good, because it is rich in nutritive qualities. It can be mixed with the soil about the roots of plants. A teaspoonful once a month to a seven or eight-inch pot will be sufficient. It can be used on larger or smaller pots in a similar proportion. If an immediate effect is desired, get *very fine* bone meal, or bone dust, instead of the ordinary bone meal sold at agricultural stores.

CHAPTER X

DISEASED PLANTS

When a plant that has been making satisfactory growth suddenly drops its leaves, you may be quite sure that its health has been injured in some way. Possibly the cause may be the red spider, but if, after examination, you find none of these insects at work, you will be obliged to look in other directions to ascertain the source of trouble. It may come from overpotting, which means that you have given the plant a pot containing more soil than it needs; or it may come from too much water at the roots, or too great heat; or gas in the room. Or it may be attributable to too great stimulation or the use of a fertilizer in too great quantities. Possibly worms in the soil may be the cause.

Before beginning any kind of treatment, try to find out what has caused the difficulty. When you have ascertained that, you can go to work intelligently. If the pot is too large, put the plant in a smaller one. If too much water is retained in the soil, see to the drainage. That must be defective. If too strong a fertilizer has been given, repot the plant, putting it into a soil of moderate richness. If the heat of the room is too intense, temper it in some way, and give plenty of fresh air.

In treating a sick plant let the soil get quite dry. Then repot the plant. Give a small pot, and remove all the diseased roots. If a new pot is used, soak it well before potting the plant. If an old one is used, clean it thoroughly. After putting your plant in it, water moderately, and then wait till the plant shows

signs of growing before giving more, unless the soil is likely to get very dry.

Sometimes a plant becomes diseased because of impurities in the soil. Such plants are often greatly benefited, and frequently restored to health by the application of hot water. Let it be at least one hundred and twenty degrees Fahrenheit. Use enough to thoroughly saturate all the soil in the pot. A hot bath of this kind dissolves, and counteracts and removes existing impurities to a great extent, when nothing else will.

Never give a fertilizer of any kind, or a stimulant, to a sick plant. Wait till it has begun to grow and takes on a healthy look. Then give it with great caution. A healthy action must be restored before it will be safe to give strong food. It will be injured by fertilizers if they are given too soon, just the same as a person recovering from a severe illness is injured by overfeeding. His digestive organs are not in a condition to make use of the food, consequently instead of its strengthening him as it ought to, and as it would if he were able to assimilate it, it increases the weakness of the organs brought into operation. Give them a chance to regain lost strength and tone before asking much of them.

If the trouble comes from worms in the soil, take a piece of fresh lime as large as a teacup, and dissolve it in a ten-quart pailful of water. When dissolved, pour off the clear water and apply to your plants, giving enough to thoroughly saturate the soil. This will almost always drive out or kill the worms, and seldom injures the plants. If one application is not sufficient, repeat it. Most plants are benefited by the use of lime water occasionally, as there is an element of plant growth in the lime. I depend on this in fighting the worm, and it generally gives complete

satisfaction if used as directed. But the use of a few spoonfuls will accomplish nothing. The soil must be soaked all through with it. No one need fear to use it, because water can hold only a certain amount of the active qualities of lime in suspension, therefore, if the clear water is used, no harm can be done by it. As a general thing worms are introduced by the use of cow manure. This is why I advise the use of such fertilizers as will not breed worms. By applying hot water to manure in the preparation of liquid fertilizer, the larvae in the material can generally be killed, but if this precaution is not taken worm-infested soil is almost sure to result.

Of late complaints come from all over the country of a disease which seems to affect nearly all plants. The leaves of the plant attacked by it show light green or yellow blotches, and these, after a time, become dry and brown, as the tissue of the leaf is eaten away. Sometimes the effect of the disease is most noticeable on the edges of the leaves, which become brown and dry, and crumble away. Generally the diseased leaves turn yellow, or rusty looking, and fall off. The growth of the plant is weak, and buds blast. If Ivy Leaf Geraniums are attacked, their leaves, on the underside, look as if they had been gnawed by some insect and more or less scarred appearance characterizes the entire foliage. A few plants are attacked at first—generally those of low vitality—but the disease rapidly spreads to others, until the entire collection looks as if it had been scorched. The trouble is due to a disease of bacterial or fungous nature. It spreads from spores which settle upon healthy leaves and establish themselves there, and soon poison the blood of the plant, which is helpless in its efforts to rid itself of them.

The only remedy seems to be found in the copper carbonates. Bordeaux mixture, used by fruit growers

in spraying their trees and bushes, will, if applied promptly, counteract the disease, but the use of it on house plants is objectionable, because it leaves a discolored sediment on the foliage. A preparation which will not discolor the leaves is now on the market. It depends for efficacy upon the same copper carbonate that is the basis of Bordeaux mixture. This preparation, which can be bought at agricultural stores, and of most florists, under the name of Copperdine, comes in the form of a paste which can be readily thinned by water and applied as a spray to all parts of the diseased plants. Or they can be dipped in it. The persistent use of this fungicide will soon overcome disease conditions. After your plants become healthy again, use it frequently to prevent a recurrence of the disease.

CHAPTER XI

WINTER PRECAUTIONS

At the North we must take especial pains to guard against the results of sudden "cold snaps" and penetrating winds which blow the cold air into every crevice. If we neglect to do this, we may wake up some morning when the thermometer is away down below zero and find our flowers frozen beyond the hope of recovery. I would advise having an extra sash, or "storm window," placed at every window where plants are kept. If this is done, and it is snugly fitted on the casing, and the glass is well puttied in, there will be no need of moving the plants at night, and it will be needless to use curtains at any time as a protection against the entrance of frost, as the two thicknesses of glass with the air space between them constitute a most effectual barrier against the cold. Care must be taken to see that the outside sash fits snugly against the frame of the window all around, also that the sash in the window has no loose joints. In order to make sure of a snug fit it is well to use strips of thin corner molding which can be procured at any carpenter's, or the weather strips for sale in most towns can be used. These, being edged with rubber, can be made to fit every corner tightly, and every crevice can be effectually closed against the entrance of wind or frost. The outside sash can be put on with screws. If the screws used are large and long, they will draw it down against the wood of the frame so firmly as to leave no crevice for wind to get through unless the frame is warped and uneven. If it is not even and flat, it is well to

tack on several thicknesses of soft cloth where the sash will come in contact with the frame. The screws will hold the sash firmly against this "packing," and a tight fit will be the result.

Of course windows treated in this way may be said to be air tight, comparatively, and those who have read what I have said about giving plants all the fresh air possible may think that here we have contradiction of advice. But because I urge making the window at which the plants are kept as nearly air tight as possible, it does not follow that we are not to give the plants in them fresh air and plenty of it. For some years past I have used a little device which works very well. A tin pipe about two inches across, with two bends or "elbows," admits as much air as the plants in a large bay window require. This pipe runs down between the window sash and the storm sash, and the lower elbow projects through a hole in the bottom bar of the storm sash, and is open to the outside air. The upper elbow comes into the room through a hole in the upper part of the window sash. This is fitted with a cap, by which all air can be kept out, if desired. When removed, there is a rush of cold air into the pipe from outside. This stream of air rises in the pipe and is discharged into the room near the ceiling, therefore above the plants. The air in the room is of course much warmer near the ceiling than elsewhere, as heated air always rises, and the cold and warm unite, and the chill is taken off the fresh air before it reaches the plants below. In order to avoid a draft *from* the room, it is necessary to have the opening for the admission of cold air lower than the opening for the discharge of it. If this is not provided for a draft may be created which will take the warm air out of your room instead of letting in fresh air. In putting in such a pipe, be sure to see that the

holes through which it passes, in the sashes, are made tight with putty.

Often there will be cracks and crevices along the baseboards of the room. Be sure to have these closed. Paste strips of cloth over all cracks in the plaster, and cover with paper like that on the walls, and the patching will not be noticed. If there should happen to be an opening between the baseboards and the floor, have a strip of the corner molding spoken of tacked firmly into the angle of the corner. It is the drafts near the floor which have to be most closely guarded against. Quite often tender plants occupying a low position on a stand are chilled, while others equally tender on a higher level are untouched. It is these drafts near the floor which persons should guard against, also, and in looking out for the welfare of your plants you are doing something which is conducive to your own health and a double benefit is secured.

Doors opening into the room in which flowers are kept, especially those which open directly outside, should have weather strips or strips of listing tacked about them in such a manner as to close all cracks through which the cold can enter. A strong wind will blow more cold air into a room in moderate weather than would be likely to penetrate into it still nights when the thermometer is below zero. Therefore be sure to fortify against the admission of air through these inlets. It is a good plan to take a day for doing this work, and begin at one corner of the room and go over it thoroughly, finishing up as you go along. By systematizing the work in this way you are sure to have it all done and well done, but if you stop a crack here and there, and now and then, you will be quite sure to have a poor job of it, taken as a whole.

If your plants should freeze, as soon as you

discover what has been done, put them in a dark room, or the cellar, where the temperature is but little above freezing, and sprinkle, or rather shower them, with cold water. Never use warm if you want to save your plants. In most cases, such plants as Geraniums, Abutilons and others of similar character can, if taken in time, before they have been allowed to thaw, be saved, and I have had quite tender plants come through the ordeal with comparatively little injury. The frost must be extracted from the plant cells gradually, and with the application of as little heat as possible. Keep them away from the light and warmth for two or three days. If the tops wilt after the frost has been extracted you may feel sure that the wilted portion cannot be saved and the sooner it is cut off the better. Cut below where it seems to be affected by frost. If some of the frosted part is left on, decay often sets in, which soon extends to other portions, and the plant is pretty sure to die. If the whole top seems killed, it does not follow that there may not be vitality enough left in the root to throw up new shoots, so do not throw them away till you have given them a chance to make a fresh start.

Do not get the idea from what I have said above, that at the North, in winter, plants can be kept in one house out of fifty without keeping fire over night, after following the advice given to the minutest particular. It will be necessary to see that fire does not go out, but a much smaller fire will be required in a room so prepared for winter than in a room which has received no attention. Do not neglect making these preparations till winter comes, and with such severity as to make it impossible to do the work outside well. Do it while it can be done carefully, and without discomfort, and it will be done much more thoroughly than it will when the fingers tingle with cold and every breath is a puff of vapor on the frosty air.

CHAPTER XII

RESTING PLANTS

Many persons seem to think that a plant ought to keep on growing all through the year. They give water, stimulants, and everything calculated to encourage or excite growth just the same at one season of the year as at another. As a natural result they have feeble plants, for no plant can keep up a healthy growth all the year round. It must have its period of rest. If a person goes without sleep he soon becomes exhausted. A plant requires something which corresponds to sleep. In growing plants in the house we must aim to imitate the processes of nature as far as possible, and if you look about you, you find that outdoor plants grow for a season and rest for a season. Your house plants must be treated in this way to secure best results. Don't expect them to give you flowers the year round. They will be so exhausted by one season of flowering that they must be given time to recuperate in. Without this resting spell they will soon be robbed of vitality, and without vigor and strength a plant is comparatively worthless.

When a plant ceases to bloom, and shows an inclination to stop growing by ripening its leaves, encourage it to rest by withholding water in a great degree, and by giving it a less amount of light and heat than it has been having, and be sure that it gets nothing of a stimulating nature. Light, warmth and water are all excitants of plant growth, and by withholding them we make it easy for the plant to stand still. If you have a cellar that is quite dark, and the temperature in it is not very much above freezing in

the coldest weather, it is just the place in which to put such plants as show a desire to rest.

The absence of light, heat and moisture at the roots enables the plant to become dormant and remain so till it is brought up after its resting spell. It is doing what the plants outside are doing, taking its annual sleep. Assist it to make this rest as complete as possible. Give only enough water to plants in the cellar to prevent the soil from becoming dry. The cool temperature, absence of light, and dormant condition of the plant makes but little water necessary, and it will not be advisable to give any in many instances, after putting the plants in the cellar, though most will require it in small quantities. This must be decided by examination. If hard wooded, shrubby plants drop their leaves while taking their rest, it is nothing that need give you alarm. The shrubs in your garden drop theirs also, but when they begin to grow next season they soon make up for what they have lost. Your house plants will make up for lost foliage when you bring them up in spring and give them a chance to grow. If you have no cellar in which to put your plants, you cannot give them that complete rest which they require, but by withholding water and stimulants, you can bring them to a standstill as far as growth is concerned, which will be a partial rest, and which will be much better than none at all.

CHAPTER XIII

MISCELLANEOUS HINTS

Do not attempt to keep plants which do not bloom in winter in the sitting room windows. Put them away in the cellar to rest, and give the room they would take up in the window to something from which you can expect flowers. Such plants as *Hydrangea*, *Oleander*, summer-flowering *Fuchsias*, and others of similar character, are better off in the cellar than in rooms, exposed to heat and light. There they can be kept in a dormant condition, which is the natural one for them, in winter. Give them no water, while stored there, unless the soil is nearly dry. Then give just enough to make it slightly moist. Put them there in November, and leave them there until March or April. Keep them as cool as possible without subjecting them to frost, and do not be alarmed if they drop their foliage.

I am often asked about the relative merits of porous and glazed pots. In the greenhouse I would use nothing but porous pots. In a very warm sitting room, where the air is dry, glazed pots are often better than porous ones, because evaporation takes place more slowly, as the air does not have a chance to get at the soil through the sides of the pot, as it does when unglazed pots are used. Tin cans are often used. I have seen good plants growing in them when holes were punched through their bottoms, to allow surplus water to run off, but unless this is done it is almost impossible to keep plants healthy in them, because the water is confined in the soil until it sours, and diseased roots result.

Other frequent questions are about using tea and coffee dregs on the soil about pot plants. Never do it. The only benefit to be derived is that which comes from it as a mulch, and if you keep your plants properly watered no mulching will be required. As the dregs decay, worms will breed in them, and in this way the health of your plants is endangered. If you want a fertilizer, use one of the several kinds recommended in a former chapter.

Never throw away cuttings. If you don't have any use for them, some neighbor will be glad to get them. Stick them down in the pot beside the old plant, and most of them will root, and by and by you can get rid of them.

If you want a bed of Geraniums on the lawn or in the front yard next season, start all the cuttings you can during winter. You can easily secure enough from half a dozen plants to fill a bed six feet square, and you can do this without spoiling your plants, too. In removing new branches from plants which have already developed as many as are required to make them symmetrical and compact, you are benefiting them instead of injuring them.

When you see that a plant requires attention of any kind, don't neglect it, but give the required attention promptly. By attending to the wants of your plants in season you can keep them in good condition, but neglected plants always suffer and are seldom or never satisfactory in appearance. It pays to take proper care of them. Indeed, if you are not able or willing to give plants the care they need, don't have any.

If possible, have a bay window so arranged that it can be shut off from the room with which it is connected by glazed doors. (Fig 8.) If this is done, you can shower your plants and close the doors, and

keep the air about them moist all day. The doors can be shut when sweeping is going on, thus keeping all dust from them. The expense will be slight, and the benefit to the plants will be great.



FIG 8—BAY WINDOW WITH GLAZED DOORS

If you want to economize space about a window, and grow as many plants as possible there, get some of the swinging iron brackets (Fig 9) for sale by most dealers in seeds. These can be fastened to the window frame with screws. You can get them with from one to five places for pots. By using two of these on each side of a window, plants can be arranged

in such a manner as to frame it in with foliage and flowers. Upright growers can be used near the wall, and drooping ones in front. It is an easy matter to group plants on these brackets more effectively than on any other support. On cold nights it will not be necessary to move the pots from the brackets, as the

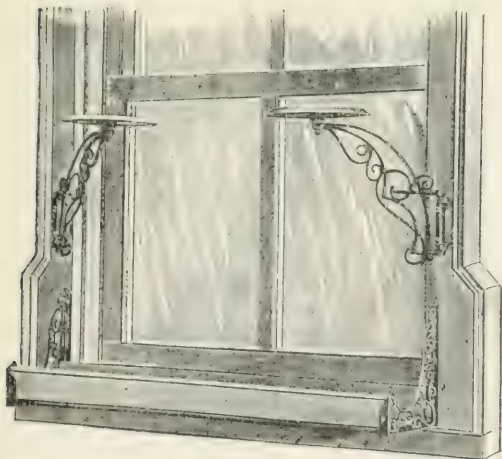


FIG 9—SWINGING IRON BRACKETS AND WINDOW SHELF

arms which support the pots are made to turn in the socket attached to the window frame, thus enabling you to swing the plants close to the glass or away from it, at your pleasure.

Never throw away a broken pot. Pick up the pieces and put them where you can get them readily

when you want some material for drainage. Many persons neglect to provide drainage simply because they have nothing at hand just when it is wanted. Be prepared for such emergencies.

Keep all plants requiring support tied up neatly and firmly. If you neglect this, quite likely you will regret it, for sometime when you are at work among them the unsupported plant will get a twist or turn by which it will be seriously injured. Then you will wish you had attended to the poor plant at the time you discovered its need of attention.

If your window is crowded with plants thin them out. Keep only as many as you can accommodate without crowding. If you have too many all individuality is destroyed; you can never expect satisfactory development where there is lack of room. Where plants have to elbow each other in their efforts to get to the light some of the less aggressive ones must remain in the background, and suffer in consequence. If you are not willing to dispense with any, change them about every week, so that all may have a chance at the light. Place the taller ones at the sides of the window, and farthest away from the glass, as they can get light over the heads of the lower growers.

Never arrange the plants in your window in such a manner as to make an effective display from the outside only. You do not grow plants, I hope, to please the passer-by, but yourself and the members of your family. Arrange them in such a way as to make the window a beautiful sight when looked at from the room. Act on the principle of making home beautiful to those who are in it first of all. If some of its beauty overflows and gladdens the eyes of those who are not members of the household, well and good. But let it be "home first, the world afterward."

CHAPTER XIV

PLANTS ADAPTED TO WINDOW CULTURE

The list of plants adapted to cultivation in the window of the living room is not as large as one would suppose, after going through a greenhouse and seeing the variety usually grown there. Many plants flourish there which would refuse to grow in the conditions which ordinarily prevail in our living rooms, where they have dust, dry air and irregular temperature to contend with.

Below I give a list of such flowering plants as can be grown in most dwellings, with fair chances of success, if proper care is given them. By the term "proper care," is meant the application of the advice contained in the preceding pages of this book concerning the treatment which pot plants should receive at the hands of their owners.

Agapanthus.	Carnation.
Ageratum.	Calla.
Amaryllis.	Chinese Primrose.
Azalea.	Cactus.
Achania.	Cyclamen.
Abutilon.	Daphne.
Begonia.	Eupatorium.
Baby Primrose.	Fuchsia.
Bulbs, for winter flowering.	Genista.
Bouvardia.	Geranium.
Browallia.	Gloxinia.
Chrysanthemum.	Hydrangea.
Calceolaria.	Hibiscus.
Cineraria.	Heliotrope.

Impatiens Sultani.	(Zanzibar Balsam.)
Lantana.	Pyrethrum.
Linum trigynum.	Primula obconica.
Mahernia.	Rhynchospermum.
Olea.	Rose.
Oleander.	Stevia.
Pelargonium.	Salvia.
Plumbago.	Valotta
Petunia.	

The following list includes the best basket plants for general use:

Othonna.	Linaria.
Oxalis.	Vinca.
Saxifraga.	Lobelia.
Tradescantia.	Trailing Lantana.
Moneywort.	

The following list includes the best vines for window use:

English Ivy.	Hoya.
Senecio, or German Ivy.	Jasmine.
Madeira Vine.	Asparagus Sprengeri.
Passion Flower.	Thunbergia.

The following are among the best plants grown for beauty of foliage:

Palm.	Dracæna.
Fern.	Farfugium.
Ficus.	Asparagus tenuissimus.
Aralia.	Asparagus plumosus.
Aspidistra.	Variegated Geraniums.
Araucaria.	Pandanus.
Begonia.	Phormium tenax.

It is not to be understood by the reader that the lists given above include *all* the plants that can be

grown in the living room. But they include all the more desirable ones—those which the amateur will find it safest to begin with—and are the standbys in this class of plants. I would advise the amateur to confine his experiments to them until he can grow them well. Then he will have gained a knowledge of the general principles of floriculture which will warrant him in undertaking the culture of plants more difficult to manage.

CHAPTER XV

THE PLUMBAGO, OLEANDER, AGAPANTHIUS, AGERATUM, STEVIA AND EUPATORIUM

The Plumbago

Plumbago Capensis is one of the best house plants I have ever grown. It is a somewhat rampant grower, but can be kept within bounds by judicious pruning. It blooms ten months out of twelve, and very freely, and on this account it is sure to become a favorite wheresoever introduced. Its flowers are shaped like those of *Phlox Drummondii*. They are borne in loose clusters, and are of a delicate shade of lavender-blue—a very rare color among flowers. Indeed, I know of but one other flower of similar color—the *Ageratum*. The flowers of the *Plumbago* are always produced on new growth, therefore in order to keep it in blooming condition it must be kept growing. Cut it back every two or three months, and cut it back well, and you will never lack for plenty of flowering surface if you give manure water once a week to induce development. On account of its peculiar color, it is very useful for bouquet work. It combines well and harmonizes with almost all other colors, and affords a most delightful contrast with yellow flowers.

The Oleander

This old favorite holds its own against all newcomers, and it is well that it does so, for it has many merits that many of the new ones lack. As a large plant for the center of a bay window, or for use on

the veranda or porch in summer, it is unexcelled. Its great clusters of rose-crimson flowers are quite equal to bunches of *Roses* in effect, and a well-grown plant will be literally covered with blossoms through half the summer. Give it a rich soil made up of loam, sand and old manure; repot each spring. Keep it in good shape by cutting back any branches which show a tendency to outgrow others. Watch the stalk and foliage, and if you notice a scale on either take an old tooth brush and apply water containing lemon or fir-tree oil, as advised in the chapter on insecticides. Mealy bug often attacks this plant, but it can be routed by washes containing one or the other of the above mentioned oils.

This plant can be made to assume a very symmetrical form by careful pruning. If you have an old plant which has become too large for the window, don't throw it away, but put it in the cellar over winter and plant it out on the lawn in summer, where it will bloom beautifully. Indeed no shrub can exceed it in brilliant show. In fall the plant can be taken up, its roots crowded into an old box or tub, and stored away in the cellar for use another year. It is well to winter your Oleanders in the cellar, because they are not winter bloomers, strictly speaking, though they often bloom at that time of the year, and they get a chance to rest while in the dark. There are several varieties, but the old rose-colored one is the best of all.

The Agapanthus

This is one of the best summer-blooming plants we have. Its merits, however, seem to be but little known, for we do not often see it in even quite large collections. It is often called a tuberous plant, but such is not the case. It has thick, fleshy roots with a semi-tuberous look about them. It throws up a

great profusion of green leaves, closely resembling those of the Amaryllis. It is what is called an ever-green, and it might well be called an ever-grower, for it does not seem to care for or require rest. In June or July it throws up a flower stalk to the height of three or four feet. Its flowers are small, but being borne in a large cluster, they are very effective, as



FIG 10—CLUSTER OF AGAPANTHUS FLOWERS

seen in Fig 10. They are shaped like a Lily, and each one is held out from the center of the cluster by a slender stem. In color they are pale blue, striped with white. This plant requires very little care. It likes a soil rather heavy with loam, plenty of water, and not a great deal of heat or sunshine. An old plant will require a large tub or box to accommodate

its thick and spreading roots, which will persist in heaving themselves above the soil, giving one the impression that a larger pot is needed when such is not the case. Apply fertilizer liberally as the flowering season approaches.

The Ageratum

This plant is an excellent one for house culture. It is a free and constant bloomer, and gives a great profusion of flowers in midwinter when so few other flowers are seen. It is of very easy culture. It likes a loam made light with sand, with a sprinkling of old manure. If the soil in which it is grown is too rich it will make a great growth of branch, with but few flowers. In color it is a soft shade of lavender. It resembles the old flower called Ladies' Paint Brush in shape, being made up of many fringe-like petals. It produces its blossoms in clusters, and is very useful for cutting for bouquets. For corsage work or button-hole bouquets it is almost indispensable, because of the rarity of flowers having its peculiar color. A spray of it used with a Marechal Niel Rose makes a lovely combination. It works in well with white. In fact, it is one of those flowers which can be used harmoniously and effectively with almost any other flower. It is subject to attacks of the red spider, but this pest can be kept from getting established on it if care is taken to dip the plants in water once a day. Do not shake them dry after dipping, but allow them to stand with the moisture remaining on the leaves. Cutting from the plant increases its flowering propensities, as it will put forth new branches, and each branch will produce flowers.

The Stevia

The *Stevia* is not a new plant, by any means, but it is one of those old plants which deserve attention from all who love really beautiful flowers. It is not a showy plant, because of its color, which is white. It is a modest flower, and seldom strikes attention when growing, but when used in bouquets it is always greatly admired. Its individual blossoms are small. They are borne in clusters, and have a feathery appearance. It is most effective when used among other plants by way of contrast. When seen among pink *Geraniums* it presents a most charming appearance. It is charming, also, when grown among *Fuchsias* of the pink and white variety. It is a most profuse bloomer, and gives its greatest crop along through November and December, when we have but few other flowers in bloom.

The Eupatorium

This flower is very much like the *Stevia* in form and color, but it has a larger and more spreading cluster, and a better habit. It has slender branches, which are thrown out well on all sides. These droop, when in bloom, and on this account the plant is well adapted for use on brackets. It is valuable for bouquet work. It is of the easiest culture, and every collection ought to include at least one plant of it. *E. riparium* is the best species.

CHAPTER XVI

PRIMULAS

Primula obconica

This is a flower that anybody can grow who will give it a fine, spongy soil and a good deal of water. It has hundreds of fine roots which take up moisture rapidly, and a moderate supply of water will be found quite insufficient to meet its requirements. It is a most profuse and persistent bloomer. It blooms most, however, in winter. Its flowers are lilac, shading into white, or suffused with a pearly pink. They are about the size of a Phlox Drummondii blossom, and similarly shaped. They are produced in loose clusters, in a sort of irregular spike, well above the foliage. They have such a dainty, modest air about them—quite like some of our dainty wild flowers of spring—that they are prime favorites with all who love flowers for individual beauty. They also have a delicate fragrance which adds to their attractiveness. Plants for winter flowering can be grown from seed sown in spring, or by division of the roots of old plants. The only insect I have ever found on this plant is the mealy bug. It can be routed by the use of the soap insecticide recommended in a former chapter.

The Chinese Primrose

This is one of the most popular of old winter blooming plants. For years it has been a "standby" for the window garden. It is one of those plants which can be depended on to give a steady succession

of flowers all through the winter season, if properly treated. It comes in various shades of red, mauve and pure white. There are single and double varieties. The doubles are finest, but the single sorts bloom more freely. On account of their rather short stalks, the flowers are not very useful for cutting, but they



FIG II—SINGLE CHINESE PRIMROSE

make a most delightful show in the window, and no collection is what it ought to be unless it includes at least one double white and one each of the white and red single kinds. The flowers are about the size of a quarter of a dollar. Some have a petal with a

smooth edge, while others are finely fringed. Most varieties have a yellow or greenish-yellow eye. A typical specimen of a single Chinese Primrose is seen in Fig 11.

This plant is quite likely to rot just below the crown if not potted in such a manner that the water runs away from the center of the pot. Therefore see that the soil slopes away from the plant to the edge of the pot, if you would keep your plants healthy. If decay sets in you might as well throw the plant away, for it seems impossible to make it take on a healthy tone again, though you repot it carefully, prune away all diseased portions, and give it the best possible care. Keep your plants from getting diseased, if you can, but don't spend much time on trying to cure them after disease sets in.

I would not advise trying to take a plant through a second season. One season of flowering seems to exhaust its vitality to such an extent that it is not able to produce many flowers a second winter, and what few it gives will be inferior. This plant likes a somewhat cool place, but must not be allowed to get chilled. It does not care very much for direct sunshine, but must have a good light, nevertheless. It is probably best adapted to culture in a window with eastern exposure.

Young plants can be bought each spring, and grown on for winter flowering through the summer, or they can be raised from seed sown in March. If you buy plants—which is the best way—keep them in a shady, sheltered place over summer, repotting as needed, and being careful to remember what has been said about potting in such a manner as to have the water run away from the crown of the plant.

The Baby Primrose

This is a variety of *Primula obconica*, of comparatively recent introduction. Its flowers are very small, individually—hence its name—but there are so many of them, and they are produced so constantly, that we have few more effective plants for winter use. They range in color from nearly white to rosy lilac. They require the same treatment as *P. obconica*, and should be grown from seed, or by division of the old roots. Plants intended for next winter's use should be started in spring.

CHAPTER XVII

THE MAHERNIA, BROWALLIA, PYRETHRUM, IMPATIENS, SULTANI AND LANTANA

The Mahernia

The Mahernia—*Unkewia uliformis* of the catalogs, and popularly known as Honey Bell—is a most charming little plant for growing on a bracket where its slender branches can be allowed to droop over the pot and dispose of themselves in their own graceful fashion. It has fine and delicate foliage, which gives it an attractive appearance when there are no flowers on the plant. Its flowers are small, light yellow in color, and shaped like a bell. They are deliciously fragrant. A few of them will fill a room with pleasant odor at night. It is not a showy plant, but it does not follow that it is lacking in beauty, or is not desirable. It likes a light, rich soil, kept moderately moist, with water on its foliage daily. It thrives in a somewhat shady window.

Browallia

A comparatively new flower, evolved from one that enjoyed considerable popularity years ago. The new form, however, is much superior to the old one, being larger, more plentiful, and deeper in color. It is a deep, ultramarine blue—the only flower of that color among our winter blooming plants, so far as my knowledge goes. Small plants, from summer seedlings, will be almost completely covered with flowers during the entire winter. Because of its shape it is sometimes called the Giant Violet. It is not even

remotely related to the Violet family, however. This is a plant the amateur will do well to add to her collection. It requires only the most ordinary attention—the same soil you would give a Geranium, and about the same amount of water, and a not too sunny place.

The Pyrethrum

Every old garden used to have its clump of Feverfew. Nowadays we know it as Pyrethrum, and grow it as a house plant. It is really a most desirable plant for the windows, because it blooms freely in winter, and gives a steady supply of flowers through half the year. The best variety is Little Gem. It is a somewhat dwarf grower, but its flowers are quite as large as those of the stronger-growing variety, and are produced quite as freely. They are of a clear white, very double, and about as large as a quarter of a dollar. They closely resemble some of the white Anemone-flowered Chrysanthemums. They are very fine for use in small bouquets. The foliage is finely cut, like that of some kinds of fern, and has a strong, spicy odor when handled. The red spider likes to work among its leaves, and will soon spoil a plant if allowed to go on unchecked. Syringe it daily to keep him in check. This is one of the plants which will stand quite a little frost without injury. On this account it is especially adapted to cool rooms. In a very warm room its buds often blast. It grows well in ordinary soil. Cutting off its flowers induces the formation of new branches, and these new branches always bear the flowers. Therefore, do not hesitate to cut from it freely, for cutting benefits it.

Impatiens Sultani (Zanzibar Balsam)

This is a comparatively new flower among us. It is not as desirable as many others, perhaps, and yet

it is one that you will not like to be without, after having once grown it. It is a most cheerful looking little plant, being almost always covered with its bright magenta-colored blossoms, which contrast charmingly with the rich, smooth, shining foliage. Its stalks have an almost transparent look when you hold them between the eye and the sun. It is not particular about having much sunshine; indeed, I am inclined to think it blooms best in a shaded place. It grows to be about a foot high, and perhaps a foot and a half across, branching freely. Its flowers are shaped very much like the old single Balsam or Lady Slipper, but are considerably smaller, and do not hug the stalk or hide among the foliage as these flowers used to. It likes a light, open soil with plenty of moisture at the roots, and a daily bath for its foliage. Unless the latter is given the red spider injures it. When a plant begins to be exhausted you will find it dropping apart at its joints. It seeds freely, and you will generally find plenty of young seedlings coming up about the old plant. It comes into bloom in two or three months from the seed.

The Lantana

This old plant has held its own against all newcomers, and is as popular to-day as it was years ago. And its popularity as a plant for sitting room culture is well deserved. It will flourish where nothing else but a Geranium would live, cheerful, and it will stand all kinds of abuse and neglect. But, because it will do this, I would not advise abusing or neglecting it. Give it good care and let it do its best. It is not at all particular about the soil it gets to grow in, if it is only moderately rich. It likes plenty of sunshine, and a moderate amount of water. It will stand any amount of pinching and pruning, and can be made

to grow as a tree or a shrub. It branches very freely, and produces a cluster of flowers at nearly every leaf. The flowers are mostly white and yellow, some varieties changing from yellow to pink after the first day or two. As the flowers on the outside of the cluster open first, they, of course, change color sooner than those in the center, and on this account you will find a cluster made up of pink, yellow and nearly white blossoms, thus giving the plant a peculiar appearance. The pure white varieties with a lemon eye are most desirable. The flowers have a peculiar fragrance, which is pleasing to many, and disagreeable to some. The odor of the foliage is not particularly agreeable. Old plants can be set out in the garden in summer, after having done a good winter's work in the window, and there they will bloom with such profusion as to almost cover themselves with flowers through the entire season. Cuttings start easily if taken from half-ripened wood, and you can strike dozens of them in March, for use in beds out of doors in summer, from every old plant in the window.

CHAPTER XVIII

THE PETUNIA, RHYNCHOSPERMUM, HILLIOTROPE AND OXALIS

The Petunia

I find the double Petunia a very poor plant for winter culture. It does well enough in summer, but it steadily refuses to give me any good flowers after November. But I have no trouble in getting enormous quantities of blossoms from the single sorts. A bouquet of single and double Petunias is seen in Fig 12. I know no other flower so prolific of bloom all through the winter as the ordinary garden Petunia, if given half a chance. It will bloom until exhausted. Then cut it back almost to the pot, give a weekly application of manure water, and in a few days you will see new shoots starting up about the base of the old stem, and in a month it will be a large plant, loaded with flowers and buds. The crimson purple varieties seem best adapted to house culture. The white kinds do very well, but they lack that purity of color which one demands in a white flower.

A very good effect is secured by planting a crimson and white plant together, letting the branches interlace. The contrast will be very pleasing.

This plant grows well when trained to a trellis, or when allowed to droop. It must be cut back frequently, if you want the greatest quantity of flowers it can give. Its flowering depends on new growth, and in order to have it bloom profusely you must treat it in such a manner as to keep it producing new branches. This treatment consists in pruning well from time

to time, and giving frequent applications of liquid manure. Seedling plants from the garden beds are excellent for winter use. If one wants to make sure



FIG 12—BOUQUET OF SINGLE AND DOUBLE PETUNIAS

of a certain variety, however, it will be necessary to grow a plant from a cutting of the sort desired, as we can never be sure what a seedling will be like.

The Rhynchospermum

This is a plant of climbing habit, having rich, dark green, shining foliage. Its flowers are pure white, and of peculiar appearance, as each petal is twisted in such a manner as to give one the impression that the turbine windmill wheel was modeled after it. The individual flowers are small; they are borne in clusters, and are produced most freely in the spring and early part of summer. They are of most delicious fragrance. This plant must be trained to a trellis or along wires in order to get the best effect from it. It is not a showy flower, but it is one that will become a favorite with all who are fond of beauty in modest simplicity. Give it a loamy soil, a moderate amount of water and comparative shade.

The Heliotrope

This is one of the most popular flowers we have, and justly so. It is beautiful in form and color, a great bloomer, deliciously fragrant, easily grown, and very useful for cut flower work or personal decoration. It can be made to bloom all the year round, but plants for winter blooming should be kept from blooming during the summer season. It is a most tractable plant. You can train it as a standard, as a shrub, or to droop, to suit your taste, and it will grow and bloom equally well in either form. A cluster of it is powerful enough to perfume a large room. It is one of those flowers which win friendship, and you find yourself cherishing a feeling of attachment for an old plant. The more you cut it the more flowers it will give you.

In order to grow it well, it must have a sunny window, considerable warmth, a rich, light soil, plenty of moisture at the roots, and rather more pot room than most plants of its size. I am often asked why

its leaves have such a tendency to turn black at the edges and dry up. In nine cases out of ten this trouble comes from one of two causes: Lack of sufficient moisture at the roots, or lack of sufficient room for the roots. Old plants will form a thickly matted mass of fine, fibrous roots in the center of the pot. Through this mass the water you apply will often fail to penetrate, and in consequence the roots at this place dry up and become diseased, and in a short time the plant drops its leaves. To avoid this trouble, see that the soil slopes in toward the center of the pot. This will cause the water to run in about the plant, and stand there until it has penetrated the soil in the center of the pot. If you think the drying up of the leaves comes from lack of root room, turn the plant out of its pot and examine the condition of the roots. If they fill the soil, and form a network about the outside of it, you may be sure that a larger pot is required. Sometimes the leaves turn brown and drop because of gas in the room, from leaky stoves. Should the trouble originate from this cause, the only remedy is that of making the stove gas tight.

A well-developed specimen will need a ten-inch pot when about a year old. The flowers are greatly increased in size by applications of liquid manure. Do not give it very strong, but give it often. The dark varieties are best. It can be grown from cuttings, started in sand. Young plants are generally most satisfactory for winter use, therefore start some each spring, and give the old ones a place in the garden beds, in summer, where they will bloom profusely.

The Oxalis

This is a good plant for house culture. It is a most profuse bloomer, and gives its greatest quantity of flowers in winter if the bulbs or tubers from which

it grows are allowed to dry off and rest during summer. It has very pretty foliage, shaped like that of the clover, borne on long and slender stems, which droop over the edge of the pot in such a manner as to almost, if not quite, hide it. The flowers of *O. rosea* (Fig 13) are a bright pink, star-shaped, and borne in clusters of a dozen or more, on long, erect stems. Those of



FIG 13—OXALIS ROSEA

the variety called Buttercup are a rich canary-yellow, slightly tubular in form, and larger than those of any other *Oxalis* I have ever grown. This is one of the best winter-flowering plants we have. It is of larger growth than the pink or white sort and blooms with much greater profusion. To grow any variety of this plant well, give it a soil of rich, light, sandy loam, plenty of water, while growing and blooming, and all the sunshine possible. All varieties are well

adapted to basket culture because of the spreading and drooping nature of their foliage. In spring, withhold water and let the foliage die off. Do not disturb the tubers until October. Then shake them out of the soil, repot them, water well, and they will soon start into growth. They will begin to bloom about the first of January and continue to do so until May.

CHAPTER XIX

ACHANIA, HIBISCUS, CYCLAMEN AND THE JASMINES

The Achania

This well-known old plant is not seen in window gardens as frequently as it ought to be. It is one of those plants which no insect ever attacks if there is any other plant for it to feed on. Because of this, and of its ability to stand dry air, frequent and sudden changes of temperature, dust, and a good deal of heat, it is one of the best of all plants for the amateur to take in hand at the outset of his career as a floriculturist. It has pleasing, dark-green foliage, shaped very much like that of the Abutilon. Its flowers are a rich scarlet, and when seen among the green of its leaves, they give a most brilliant bit of color. They are never borne in great profusion, but a well-grown plant will seldom be without a few on each branch, therefore it is much more satisfactory than many plants which bloom by "fits and starts," and can never be depended on for flowers. It requires ordinary soil, about the same amount of water as the Geranium, and a sunny location. It becomes quite a shrub with age.

The Chinese Hibiscus

The Hibiscus seems to be a plant comparatively little known, but its merits as a summer bloomer are so great that it ought to be grown by all who are fond of beautiful flowers, and a brilliant show of color. As

a plant for growing in large pots or tubs, to decorate the porch or veranda, I know of nothing superior. For the summer decoration of the greenhouse or small conservatory, which is likely to be somewhat neglected at this season, it is one of our very best plants. If I were to choose three plants for such use, I would take the Fuchsia, Gloxinia and Hibiscus. These are all summer bloomers, profuse in flowering, beautiful in habit, and of the greatest variety of color, and all are easily grown.

The Hibiscus delights in a rich soil, made up of loam, woods earth, and some old and thoroughly rotted manure, with sand enough added to make the mass light and porous. Especial care must be taken to give good drainage, as the plant will be pretty sure to drop its leaves and buds if there is stagnant water at its roots. It must be watered regularly. One neglect to do this gives it a check which will injure it for all the season. If you want fine plants, they must be grown on steadily, and anything which interferes with steady growth will prevent success. They are fond of sunshine, but should be protected from the intense heat of the afternoon. They are also fond of a good deal of moisture on their foliage. The leaves are a rich, shining green, and form a fine background for the large and exceedingly brilliant flowers, which are often of the size of a Hollyhock, which flower some varieties resemble. The color of most varieties is a bright, glowing scarlet.

The plant should be dried off gradually in October, to prepare it for winter in the cellar. Bring up in March, repot, and cut back well. Many complain that it drops its buds at the least provocation, and often without any, in fact. I have had plants which would do this, but careful examination has always shown me that there was some cause, and that I have most

always found to be defective root action. Drainage must be perfect, the soil must be kept moist but not wet, and the red spider must be kept from working on the plant.

The Cyclamen

The Cyclamen is a good plant for culture in the sitting room window. Its foliage is very pretty, that of most varieties being blotched and marbled with light green on a darker surface, with reddish veins



FIG 14—THE PERSIAN CYCLAMEN

running through it. The flowers are mostly of shades of pink and mauve, passing into white toward the extremity of the petals, which are sharply reflexed. A well-grown plant will seldom be without flowers from January to April. The bulbs should be pressed down on top of the soil to about half their depth. They like a rich soil, with plenty of sand in it. They do not require much water, but they must not be allowed to get dry during their season of flowering. A weekly application of liquid manure helps to increase the size and quantity of the flowers. In summer the bulbs should be dried off gradually, and the pots containing them put out of doors in some shady place where they will get plenty of air. Give just enough water to keep them from drying up. Repot in September, using the same size of pot they have been growing in. Do not be alarmed if the bulbs lose their foliage in summer. As long as the bulbs remain plump and hard they are all right. Old bulbs, however, are not so desirable as young ones, and I would advise the purchase of young plants each season in preference to keeping over plants which have done duty in the house for a season. The *Cyclamen* is generally classed among the bulbs. It is not a bulb, however, strictly speaking. A well-grown plant of *Cyclamen Persicum* is seen in Fig 14.

The Jasmines

Under the name of Jasmine or Jessamine several different kinds of plants are popular with most amateur floriculturists, because of the ease with which they can be grown. Give them soil of ordinary richness, sunshine, and keep them free from insects, and they are pretty sure to do well in the sitting room or in the greenhouse.

One of the most popular kinds of these plants is the *Cestrum*, commonly known as Jasmine. *C. Parqui* is a species with greenish-yellow, tubular flowers, borne in racemes on the ends of the branches. These open at night and emit a heavy, rich fragrance which will pervade the air to a great distance. One cluster will fill a large room with its perfume. It grows very rapidly, becoming a strong shrub in a few months. It has large and handsome foliage, and produces a fine effect when given a pot large enough to allow free development of its roots. It is excellent for use as the center of a group in a bay window. It can be wintered in the cellar.

Cestrum aurantiacum resembles *C. Parqui* very much in foliage and habit of growth, but its flowers are a pale yellow. They are produced in great profusion during the latter part of summer. This plant is best taken care of over winter by putting in the cellar. It forms a charming shrub, or can be trained as a standard.

Gardenia florida is known as the Cape Jasmine. It has rich, shining foliage of a dark green. Its flowers are white, thick and waxy in texture, and possess an odor similar to that of the Tuberose. It is a summer bloomer, and should be wintered in the cellar. It is not a rank grower, seldom getting to be more than a small shrub outside of a greenhouse at the North. Shower well often, to keep down red spider, and see that the scale does not get on it. Give a sandy soil, moderate amount of water, and a sunny place.

Jasminum grandiflorum, a true Jasmine, is a favorite old plant. It is a climber. It grows quite rapidly, and will clamber all about the window in one season. It has fine foliage, and bears star-shaped, pure white flowers in great profusion. These are delightfully sweet. Its season of flowering is from November till May.

Jasminum revolutum is a kind of half-shrubby half-climbing species, with thick evergreen foliage. Its flowers are a rich yellow, and fragrant. Give a sandy soil, made rich with rotten manure. Drain well, and apply water daily to the foliage. Cut back from time to time to induce constant development of new branches. Give a good amount of sunshine, and a warm place to grow in.

CHAPTER XX

THE CALLA, SALVIA, BOUVARDIA AND GENISTA

The Calla

This plant is one of the most popular on the list. Its large, rich green leaves, thrown up well above the



FIG 15—CALLA BLOSSOMS AND LEAVES

pot on their long stalks, are quite ornamental enough in themselves to give it an honorable place in any collection; add to the attractiveness of these its large white blossom, as the spathe surrounding the spadix is incorrectly called, and it is not at all to be wondered at that it is, and long has been, a general favorite. For the center of a bay window collection it is unexcelled, when well grown. A typical specimen *Calla* is shown in Fig 15.

It is one of those plants which can be kept growing all the year round without seeming to be injured by this treatment. I have seen fine plants which had been kept growing for years, and so far as I could see, they were strong and healthy. But I have always had the most flowers from the *Calla* when the roots were dried off every summer. My plan is to put the pot out of doors in June, on its side. No water is given from that time to September. Then I turn the earth out of the pot, shake away the soil from the roots, and repot them in a compost made up of muck, well-rotted manure and sand, taking care to put more sand immediately about the bulb than elsewhere. I provide the best of drainage. Though a semi-aquatic plant, it does not delight in stagnant water about its roots. The requisite amount of water can be given by watering daily, and giving it in such quantities that some will run through at the bottom of the pot. In winter let the water be warm. Shower the foliage daily. Give a light but not very sunny window, and keep it rather warm. Do not let more than three or four crowns remain in a ten-inch pot. Keep all offsets beyond this number removed as they appear. Four crowns will give you, or ought to give you, about sixteen strong, healthy leaves at a time, and during the flowering season each crown ought to give from three to four flowers.

The Salvia

The Scarlet Salvia—*S. splendens* of the catalogs—is a fine plant for house culture, provided the red spider can be kept from settling on it. If not showered well daily, this pest will soon ruin it. It grows to the height of three or four feet, in a good soil, if given plenty of root room. It has large, rich, shining foliage, and bears long spikes of velvety scarlet flowers, of most intense richness of color. It is one of our best autumn-flowering garden plants, and young plants can be taken away from about the roots of the old ones in September and potted for winter use. In a short time they will become good specimens, and by November they will come into bloom. If the spikes are cut off as soon as the flowers on them fade, new branches will be sent out below, which, in turn, will produce flowers. As growth will go on all winter, if good soil is given, flowers will be borne constantly, and in great profusion, and nothing finer in the way of vivid and brilliant show can be imagined. Its flowers have a fiery luster equal to those of the *Labellia cardinalis*. They are excellent for cutting for use in bouquets.

The Bouvardia

This plant would be a general favorite with all who love beautiful flowers if it were of easier cultivation. But, as generally grown, it is unsatisfactory. This is the fault of the grower, rather than of the plant, however. If proper attention is given to the soil and general requirements of the plant, it can be made to bloom successfully in the window, but if neglected in these respects it will generally refuse to blossom; or if it bears flowers they will be so few and inferior that after a year or two the owner gets tired of trying to grow good plants and they will be thrown aside for something less exacting.

I find that in order to have good flowers from this plant in the sitting room in winter one must take especial pains with the plants in summer. I take the old plants in June and break the roots apart. Leave several "eyes," or growing points, to each plant. Set in the open ground, in a light, rich, sandy soil. Soon several shoots will appear. Let as many grow as you think will be needed to give you a good-sized plant in fall. After they have made a growth of a foot, cut the tops off to induce branching. In this manner you secure plenty of flowering surface for next winter's crop of flowers.

In September lift and pot your plants. Have the compost rich, and see that it has a good proportion of sharp sand in it. Set the plants in shade for two or three weeks, watering well when potted. Do not take inside until they seem thoroughly established in their pots. Then give a sunny window, plenty of air overhead, and a moderate amount of water. Great care must be taken to prevent the red spider and aphids from attacking them; also the mealy bug. All these insects seem to have an especial fondness for this plant. In November the plants will begin to show flowers, and if they are given a good cutting back occasionally, and liquid manure is applied weekly, and they can have a somewhat warm, but not hot, place to grow in, they will give a steady succession of flowers all through the season.

There are several fine varieties. Some are a brilliant scarlet; others a soft rose color, while some are pure white, and last year we had a sulphur-yellow variety heralded in the catalogs. It was valuable only as promising something better in that color by and by. There are double and single sorts, both equally desirable. For small bouquets, corsage decorations, and the like, few flowers are superior. They have a

grace and delicacy which commend them to all who love flowers for individual beauty. In the greenhouse we have few better plants. They grow to perfection there on account of warmth and moisture and even temperature.

The Genista

This plant has lately come into popularity because the florists have taken it in hand and made it familiar to the flower-loving public, by bringing it into bloom



FIG 16—THE GENISTA

at Easter time, when liberal use is made of it in the decoration of churches for the special services of the season. Its flowers are pea shaped, and borne in short spikes all over the many branches. In color they are a rich, glowing yellow, and the popular name of "the flower of the cloth of gold" is a most appropriate one. They have a very pleasing fragrance. The foliage is fine and plentiful, and makes the plant well worth growing if it had no flowers. To succeed with it, care must be taken to see that it never gets dry at the roots. If this occurs, its leaves will drop. Especial care must be taken to prevent the soil from drying out as flowering time approaches. Then give liberal applications of fertilizer to encourage the free development of bulbs. Shower frequently throughout the season. Give a soil of loam and shift when the old pots become full of roots. A well-grown specimen is seen in Fig 16.

CHAPTER XXI

THE AMARYLLIS, VALLOTA, GLOXINIA AND TUBEROUS BEGONIA

The Amaryllis

This is a noble genus of plants. The flowers are gorgeous in coloring and conspicuous on account of shape and habit of growth. A fine plant, when in bloom, always elicits great admiration, and there are few collections which do not include one or more varieties. But, as a general thing, few plants are more unsatisfactory. It is a general complaint from ladies that "my Amaryllis won't bloom. What is the matter with it?"

As a general thing the "matter" is simply this: The habit of the plant is not understood. It must have a period of rest after each period of growth, and unless these periods succeed each other regularly you will be likely to get no flowers. As generally grown, the plants are kept growing all the season. They are kept in the window, and water given regularly. This is wrong. While making new leaves growth should be encouraged. When the leaves stop coming and the older ones begin to turn yellow, you may take it as an indication that the plant wants to rest. Encourage it to do this in as complete a manner as possible by withholding water. Not so much so that the soil becomes quite dry, but just moist enough to keep the bulb plump. Set away from the light. If the foliage all dies off it does not matter.

Among the first indications of a resumption of growth will quite often be the appearance of a flower stalk. When this shows, give liquid manure, li-



Amaryllis

Hippeastrum

Zephyranthes

Sorekella

FIG 17—PROMINENT TYPES OF AMARYLLIS

and warmth. The blossoms are shaped like those of the Trumpet Lily. There will generally be three or four on each stalk. Some are scarlet striped with white down each petal. Some are rose color striped with white, while others are scarlet with white flakes and marblings, or white with flaking of the darker color. If care is taken to give alternate periods of rest and growth, and make each condition as complete as possible, a crop or two of flowers can be looked for each year with reasonable certainty. A well grown plant is a superb sight, either in the sitting room or greenhouse. There are several distinct types of *Amaryllis*, some of the leading ones are shown in Fig 17.

The Vallota

Vallota purpurea, or Scarborough Lily, is well known as a good late summer or early fall flowering bulb. It is often called an *Amaryllis*, and indeed it is a member of that family, but it does not require the treatment recommended for that flower, and, unlike that, it can be depended on with tolerable certainty to give a crop of blossoms in August or September of each year. Its flowers are produced on stalks about a foot in height. Each stalk bears from three to six, as seen in Fig 18. They are shaped like those of the *Amaryllis*, but are not so large. In color they are a glowing scarlet, and when seen among the dark green foliage of which the plant bears a profusion, they are extremely brilliant and effective. It is an easily grown plant. It does best when stored in a cool, dry cellar in winter. If kept for pot flowering, it seems to be somewhat opposed to having its roots disturbed. Therefore, if it is found necessary to repot it, do this immediately after its annual blooming season in order to give the bulbs a chance to become perfectly



FIG 18—VALLOTA PURPUREA

established before the next season comes around. If this is not done till spring, it has, with me, almost always refused to bloom for a year. It produces new bulbs rapidly, and most of these should be removed as they appear, or you will soon have a pot filled to its edge with small plants which will interfere with the vigorous blooming of the older bulbs. Four or six old bulbs in a ten inch pot will be sufficient. Save the offsets and plant them out in the garden in spring where they will be likely to bloom the second season. In fall they can be taken up and stored away with Tuberoses and other bulbs of that class.

The Gloxinia

The Gloxinia is one of the very finest of all summer blooming plants for window or greenhouse culture. It is wonderfully rich and varied in its coloring. In this respect it quite equals the Pansy. Its depth of color gives it a velvety look which always challenges admiration from the lover of rich and magnificent coloring. In shape it somewhat resembles the well-known old Canterbury Bell of the border, as shown in Fig 10. The flowers of most varieties are drooping in habit, though some are erect. The colors range through all shades of scarlet, crimson, rose, purple, lilac, lemon-yellow and blue to pure white. Some will have a white throat, while all the rest of the flower is dark. Others will have an edge merely of white, while others will have heavy blotchings of vividly contrasting colors. The flower is thick in texture, and frequently lasts for a week before falling off. There will be from three to six at a time on well-grown plants, with buds in all stages of development. If plants are started in March or April they ought to come into bloom by June, and from that time to

November they should give a steady succession of bloom.

The Gloxinia can be grown from seed. The directions given regarding the growing of the *Mimulus* from seed will apply in this case. But as plants will not be likely to reach a flowering size before two years, under ordinary treatment, I would advise buying

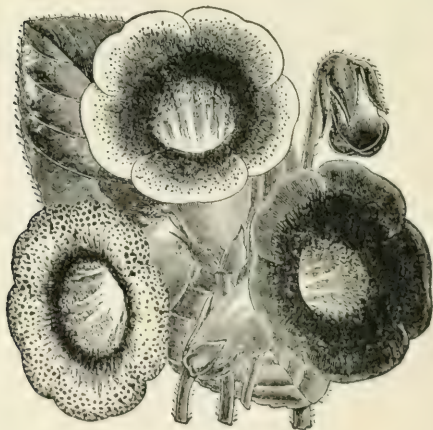


FIG 10—HYBRID GLOXINIAS

tubers. In this way you can be sure of flowers the first season. This plant likes a light soil, made up principally of leaf mold, with considerable sand worked in. Use enough leaf mold, with all the roots dug with it left in, or turfy matter full of fibrous grass roots, to make the compost spongy in character. Put

a root an inch across in a five-inch pot. For larger tubers use a six-inch pot. Plant them so that the top of the root will be covered about half an inch. Give a warm, moist place, but not very strong sunshine at any time. When blooming give a shady place, as the thick flowers are easily affected by the rays of the sun, and turn brown in a short time. Give water enough while the plant is growing to keep the soil moist all through. The Gloxinia likes a good deal of moisture in the air, but does not care to have it applied to its foliage by showering. A well-grown specimen will have foliage six or eight inches long and about four inches across, and the leaves will droop or curve over the pot in such a manner as to almost hide it. The foliage, like the flowers, is very thick and heavy in texture, and because of its tenderness is easily injured in handling, therefore do not bruise it if possible to avoid doing so, or the leaves will have discolored spots on them which render them unsightly, and a good background or foundation of perfect foliage is necessary in showing off the flowers to the best advantage. When in bloom give semi-weekly applications of not too strong manure water. This will increase the size and quantity of the flowers greatly.

About November, and sometimes earlier, the flowers will begin to diminish in size and number, and the foliage will show yellow edges. This indicates a desire on the part of the plant to rest. Encourage it to do so by withholding water, not all at once, but gradually. The leaves will ripen and drop off one by one. When they are all gone, set the pots containing the tubers away in some place where they will be safe from frost, and allow them to remain there till the following March, giving no water meantime. Then repot them, and start into new growth by giving water, light and warmth. Some persons take their Gloxinias

out of the pots in fall and store in sand or sawdust, but I have come to the conclusion that leaving them in the pots where they grew during summer is the safest plan, if one is careful to dry them off well before putting them away. Of course they should not be stored in a place where the air is so dry that the tubers will be withered. There should be just enough moisture furnished to keep them in a plump condition while resting.

Tuberous Begonias

These plants are revelations to us. They are a "new departure" in the Begonia line and convince us that still greater surprises are in store for us from this wonderfully versatile family. They come in a wide range of colors, many of them being as rich and deep in tone as the darker Geraniums, while some are exceedingly delicate in coloring. Some are double, some single—all showy, and sure to attract attention. They require the same treatment in all particulars as the Gloxinia.

CHAPTER XXII

THE ABUTILON, MIMULUS, CINERARIA AND CALCEOLARIA

The Abutilon

The Abutilon, Chinese Bell Flower, or Flowering Maple, as it is known in various sections of the country, is one of the best of all plants for house culture. It is a free grower, a good bloomer, and gives its greatest crop of flowers during the winter season, when flowers are most highly prized. It is a plant that does not require coaxing to grow well. It stands dry air, dust and frequent changes of temperature better than almost any other plant, and is seldom attacked by any insect. All these things taken together make it a plant especially adapted to the wants of the amateur. It is a good plant to begin on.

A well-grown specimen is always a source of pleasure to the lover of fine plants. A poorly grown plant is an eyesore, for if awkward at all it is likely to be very much so. There is no reason why your plants should not be well shaped if you are willing to give them a little care. All that is required is judicious pruning at the proper time. The Abutilon is a very tractable plant, and can be made to assume almost any form desired. If you want a shrub of it pinch back while small, to induce the formation of branches near the pot. If a tree shape is preferred let a straight stalk grow to the height of two, three or four feet, according to the height desired for the top or head of your tree. Then pinch back, and let branches start, being careful to leave only those near the top. By pinching

these back in turn you can force other branches to break, and in this manner a bushy head can be formed with but little trouble.

The flowers are pendulous, and shaped like a bell, hence the name of Bell Flower, while the foliage of most varieties is shaped like that of the Maple, hence the name of Flowering Maple. The colors run through various shades of red, pink, orange, clear yellow and crimson-purple to pure white. A well-grown plant, when in full bloom, is a beautiful sight, with its graceful bells pendent from their long and slender stems, showing against the pleasing and abundant foliage. King of Roses is a beautiful, soft rose color, veined with white. It is a most profuse bloomer, and makes strong growth. Golden Fleece is pure yellow, also a great bloomer. Crusader is a rich scarlet. Boule de Neige is a pure white, very delicate in habit, and one of the best. There are several fine variegated sorts. One of the best is *A. Thompsonii*, with leaves elegantly marbled in mosaic-like pattern with light and dark green and yellow. *A. axillarium* is a trailing variety, with long and pointed leaves of green and yellow. It is a charming plant for a basket, or for growing in a pot on a bracket. *A. Savitzii* has foliage of a pale green, heavily edged and marked with white, and is one of our very best variegated plants for decorative purposes.

The Abutilon likes about the same kind of soil that suits the Geranium. It must have considerable pot room if you want to develop the full beauty of the plant. Shower well to keep the foliage clean, and bring out the beauty and brightness of it to the best advantage. The scale sometimes gets on the stalk. In case you find it there, scrub the plant well with an old brush and soapsuds. Cuttings can be started very easily at any time of the year. If you want your

plants for winter blooming, keep them pretty dry during summer. Repot in September, cutting the branches in well at that time. If allowed to bloom in summer, they can be kept over winter in the cellar. Old plants can be set out on the lawn in summer, where they will bloom with great profusion till the coming of cold weather.

The Mimulus

Mimulus moschatus, or Musk Plant, so called on account of the peculiar musky odor of its foliage, has long been grown in window gardens, where it has given very good satisfaction. Its flowers of yellow blotched with maroon have a bright and cheerful look in midwinter. It is easily raised from seed. If wanted for winter blooming, sow in June, in pots or pans of very fine, light earth. Sprinkle the surface of the soil before sowing the seed, and press down smoothly with the hand. Then scatter the fine seed *over* the soil, after which press the earth in the pot or pan again to imbed the seed in it. Because it is so fine, it is hardly safe to attempt to cover it, and it will germinate quite as well without being covered if it is kept moist. The young plants will soon appear. Do not force them or they will become weak and spindling. Give plenty of fresh air, and, after a little, the early morning sunshine. These directions, it will be well to bear in mind, are for a June sowing, for the purpose of raising plants for winter use.

When five or six leaves have been made, pick off the young plants into two or three inch pots, filled with ordinary potting soil. Do not give too much heat, and keep sheltered from winds, as the plants are always tender and therefore easily bruised. If strong plants are desired, frequent shifts must be made. Pinch the branches back to make the plants bushy, and do not

allow them to bloom during the fall. A seven-inch pot will afford ample room for the roots of a good specimen. A liberal supply of water should be given, but the soil must be kept light and porous to prevent the bad effects of overwatering. Be sure to see that the drainage is perfect. When in bloom give a rather shady window. An east one is much preferable to a south one. This plant is excellent for basket use if you are particular to give it all the water it wants. The lately introduced varieties are much larger than the old *M. moschatus*, and have very rich flowers, rivaling in brilliance the Tiger Lily, which they somewhat resemble in the vividness of their markings.

The Cineraria

This is a most magnificent winter blooming plant. Its flowers are produced in great numbers, in flat clusters, and almost cover the plant, as seen in Fig 20. They are wonderfully rich and varied in coloring, and a good-sized plant, in full bloom, is a flower show in itself. The flowers are about an inch across, mostly single. Some will be dark in color the whole length of the petal, with a yellow center, while others will be rayed or banded with white. The prevailing color is a rich purplish-crimson, running through many shades. The flower stalks are thrown up among the strong foliage which covers the soil and spreads over the edges of the pot. This plant can be grown from seed, which should be sown as directed for the *Mimulus*. March or April sowings will generally give winter flowering plants. But I would advise buying young plants in spring rather than depending upon seedlings of your own raising. In order to grow good plants from seed the amateur is obliged to work very carefully, as young plants are extremely delicate, and

a little mismanagement is likely to result in entire failure. I would not be understood as attempting to discourage the amateur from experimenting in growing plants from seed, but what I mean is this: That he will always find it safer to depend on plants which he can buy of the florist.



FIG 20—SPECIMEN CINERARIA PLANT

The Cineraria should be repotted from time to time during the summer. By November it ought to be growing in a seven-inch pot. When you have brought it to this stage, do not shift again, but let the roots fill the soil until they become somewhat pot-bound, in

which condition it will bloom better than it will in a pot containing soil which is not completely filled with roots.

The great drawback to the successful culture of the *Cineraria* in the sitting room is its liability to attacks of the aphid. Quite often before you suspect the presence of this insect the underside of the leaves will be covered with them. If not driven away your plants will be ruined. I have found the soap insecticide heretofore spoken of most effective in fighting this pest. Dip the plants in the liquid, instead of showering them, and let it dry on the lower side of the leaf, where it seems to leave a "tang" which the aphid is not fond of. Give ordinary soil, and moderate amount of water, with plenty of light.

Do not attempt to carry over old plants for a second season's flowering. Get young, strong plants each season, in fall, if you want fine flowers from the *Cineraria*.

The Calceolaria

This is a fine plant for late summer and fall use. It produces a wonderful profusion of flowers in large, branching clusters, very peculiar in shape. Each flower is a sort of bag, like our native Moccasin Flower. The colors range through yellow, maroon and crimson, most varieties being thickly spotted with contrasting colors. The plants can be grown from seed, or you can buy them in spring from the florist. The seed, like that of most greenhouse plants, is very fine, and extreme care must be taken in sowing it not to cover deeply with soil or it will fail to germinate. The directions given for *Minulus* apply equally well to the *Calceolaria*. Give it a moderate amount of water, ordinary soil and sunshine. Like the *Cineraria*, it is subject to attacks from the aphid, and must be

watched carefully to guard against the depredations of this insect. Apply the soap insecticide as advised for the Cineraria. Late-sown plants can be made to bloom in winter if the air in which they are grown can be kept moist enough to keep the red spider from working. A well-grown specimen plant is seen in Fig 21.



FIG 21—SPECIMEN CALCEOLARIA PLANT.

CHAPTER XXIII

THE HYDRANGEA, DAPHNE, OLEA FRAGRANS AND MYRTLE

The Hydrangea

The Hydrangea is a prime favorite with all who have room for a shrub of the size which it attains with age. Its large, rich foliage, of the brightest green, gives it an attractive appearance at any time. When to this is added the immense clusters of flowers which are produced so freely during summer, and which last so long, it is certainly a plant to be admired.

Old plants often get to be four and five feet high, with many branches, and each branch will bend beneath the weight of its great panicle of bloom. These panicles are often eight inches across. They are composed of hundreds of individual flowers. The best known species, *H. hortensis*, bears bright pink blossoms, gradually changing to a pale green. They remain for months.

The culture required is very simple. Give a soil of ordinary richness, water freely while growing, and keep from the hot sun. In fall gradually withhold water, and put the plants in the cellar over winter. Give plenty of root room. An old plant will require a large box or tub if you expect a yearly development of strong branches from which the flowers of the next year will be produced. This plant shares in popularity with the Oleander, and, like that plant, it is one of the best for summer decoration of the piazza or lawn. A pretty variety for the window is *H. speciosa variegata*, having a leaf of bright, shining green, banded

down its center with pure white. Like most variegated-leaved plants, especially those having a pure white variegation, it is somewhat delicate and will not do well out of doors. The variety *Otaksa* (Fig 22) is a stronger grower and more profuse bloomer, and is especially suited for pot culture for decorative purposes.



FIG 22—HYDRANGEA OTAKSA

The Daphne Odora

This old plant is not as well known as it ought to be, or as it would be if its merits were more familiar to the flower-loving public. It is an evergreen shrub, having thick, dark green foliage. On the

extremities of its branches it produces clusters of flowers, mostly white, but having sometimes a slight pinkish or lilac tinge. They have a most delicious fragrance, and on this account, if for no other, the plant ought to become a favorite. But it is quite as beautiful as it is sweet. A plant will reach a height of three feet in five or six years, with many branches. If left to train itself it generally branches a few inches from the pot, but it can be made to assume a tree shape. It can be wintered in the cellar.

Olca fragrans

This species of Olive, which is also known as Osmanthus (fragrant flower), is a most delightful little plant for those who love flowers for individual merit rather than mere show of color. It has foliage of a thick, leathery texture, and on this account is well adapted to culture in a room where there is dust and hot, dry air, all plants having this kind of foliage standing these drawbacks to successful cultivation much better than those having thin or soft foliage. It is a slow grower, and does not become a large plant outside of a greenhouse. Its flowers are so small as to be inconspicuous, and often you would hardly suspect their existence were it not for their delicious fragrance, which is strong enough to pervade a large room. The odor has some of the peculiarities of the tuberose scent, being rich and heavy, but not so much so as to be sickening or cloying. Give ordinary soil, a half-shady place, moderate supply of water, and keep the plant clean.

The Myrtle

This plant is seldom seen in perfection in the living room of American families, but among the Germans remarkably fine specimens will be found. I

have seen plants five and six feet tall, with a spread of three feet, thickly set with branches from the pot to the top of the plant, and every branch apparently retaining all the leaves it ever had. The beauty of such a specimen, in its luxuriance of glossy, dark foliage, makes one long to find out the secret of its most successful cultivation. I have repeatedly asked the owners of such plants how they grew them to such perfection. The answer almost invariably is: "Use rich soil, and keep them clean." Beyond this, they do not recognize any special requirement on the part of the plant. An examination of the soil in which I have found fine specimens growing has convinced me that a sandy loam suits them best. This should be made quite rich, and kept moderately moist. By "keeping clean," I presume the owners meant that frequent showering was advisable. I have never seen but one insect on this plant, and that is scale. By dipping it in an infusion of lemon oil, the plant can soon be freed from the ravages of this pest. The kind of Myrtle in common use is *M. communis*. It blooms in spring, and has a charming little white flower, whose petals are as daintily delicate as frostwork.

CHAPTER XXIV

SWAINSONIA, JUSTICIA, LINUM, CLIVIA, BOUGAINVILLEA, MARGUERITE, PENTAS, TROPAEOLUM AND EUPHORBIA

Swainsonia

A very desirable, free-flowering plant. There are two varieties in general cultivation, *alba*, white and *rosea*, pink. Their flowers are produced in clusters. They are like those of the Pea in shape. The foliage is profuse, and of a rich green, and being finely cut, it furnishes a pretty background for the flowers. Considerable pot room and plenty of water should be given. Fine for greenhouse or window garden.

Justicia

A very easily grown plant. Flowers pink, produced in large, upright heads. Give a sandy soil, moderate amount of water and a sunny window.

Linum Trigynum

A favorite house plant. Flowers rich yellow, produced so freely as to cover the branches. Subject to red spider.

Clivia, or Imantophyllum

This plant ought to be better known. It is of very easy culture. It has leaves like those of the Amaryllis. Its flowers are lily-shaped, borne in large clusters. They remain for a long time. Color, orange, with buff markings at the throat. Roots thick and

fleshy, throwing the crown of the plant well above the soil, unless frequently repotted. Grows in any good soil.

Bougainvillea glabra Sanderiana

One of the most striking plants of recent introduction. Unlike the older forms of *Bougainvillea* this variety is of close, compact habit. It comes into bloom in February or March. What are generally considered its flowers are really bracts inclosing the true flowers, which are small and inconspicuous. These bracts are a bright rosy crimson. They literally cover the plant and remain for months. It is of the easiest possible culture. Give it a sandy soil, a sunny location, and plenty of water while growing. After the bracts lose their brilliance, cut the plant back sharply, shortening every branch until it is little more than a spur. Keep rather dry for about two months. In October, repot and encourage growth. Seldom troubled with insects of any kind.

Marguerites

Paris Daisies. Charming plants for winter flowering. Foliage very attractive, being finely cut. Flowers single, and shaped exactly like those of the Meadow or Field Daisy, but having narrow petals, and more of them. The white variety is most extensively grown, but the yellow variety ought to be in every collection. Strong growers. Must have plenty of pot room in order to do well. Pinch back at intervals during summer, to insure compact form. Often troubled with scale. Use lemon or fir-tree oil, and scrub the stalk well with a stiff brush. Does well anywhere. Excellent for cutting. A good plant for Easter use.

Pentas lanceolata

A plant not very extensively grown, because it is not as well known as it ought to be. Its flowers are pure white, in clusters. They resemble those of the *Bouvardia* somewhat in general appearance, but are larger. An excellent winter bloomer.

Tropaeolum

These are good winter bloomers if the red spider is kept from injuring them. Give them a sunny place, and a soil of only moderate richness. In a rich soil, they produce branches luxuriantly, but have but few flowers. A new variety, *Phoebe*, is one of the best for greenhouse culture in winter. Its flowers are a rich yellow, with a blotch of crimson maroon on each petal. This variety grows to a height of ten feet and must be trained on strings or wire netting.

Euphorbia Jacquiniflora

One of the old favorites, fast regaining its former popularity because of its great merit. Flowers of bright orange scarlet, in drooping, graceful sprays. Excellent for winter use.

CHAPTER XXV

THE ABUTILON, BEGONIA AND ROSE

The Abutilon

Chinese Bell Flower, so called because of the shape of their pendent flowers; also known as Flowering Maple, because of the resemblance of its foliage to that of our native Maple. An excellent plant for the house or greenhouse, because of its sturdy habit, profuse flowering qualities and the beauty of its blossoms. Requires about the same care as the Geranium. Can be grown as a small tree, by training as advised in the remarks on the Chrysanthemum. The following are among the most distinct sorts:

Boule de Neige—Pure white.

Royal Scarlet—Rich scarlet. Very fine.

Rosaeflora—Bright rose.

Splendens—Red.

Infanta Eulalia—Pink Great bloomer.

Golden Fleece—Yellow. Free flowering.

A list of varieties having beautifully variegated foliage will be found in the chapters devoted to the description of Decorative Plants.

Begonia

Everybody grows this plant, and almost everybody succeeds with it, because it is one of the plants that needs no coaxing or humoring. Give it a soil containing considerable leaf mold or turfy matter, or one of loam and sand, drain its pots well, and keep it out of the hot sun, and you will be sure to get plenty

of flowers. It is seldom attacked by insects, but has been troubled, somewhat, of late, with the fungous disease of which mention has been made. This can be kept in check easily by the use of Copperdine.

There are many varieties in cultivation, all good, but the amateur who is obliged to confine his or her selection to a few varieties will find the following list to include the best and most distinct sorts:

Haageana—A robust variety, having bronze-green foliage, and large, rosy-white flowers.

Rubra—A grand old variety. Strong grower. Flowers coral red, in enormous, drooping, spreading panicles. Always in bloom. The Begonia for everybody to grow.

Semperflorens gigantea—Carminé flowers, large and showy.

Gloire de Lorraine—No plant of recent introduction has created a greater furore among florists. A magnificent sort for winter flowering. Of medium size and very symmetrical habit. Literally covered from October to April with large rose-colored flowers. The queen of Begonias.

Tuberous Begonias are among the finest of our summer blooming plants. They should be started in January and February for early flowering, and at intervals thereafter, up to March, to prolong the season of bloom. They like a rich, spongy soil, which should have good drainage. Keep in a light place, but not in strong sunshine. The flowers of many varieties often measure six inches across. In color they range from white and delicate shades of yellow and rose to brilliant tones of scarlet, crimson and orange. Some are single, some double. The double sorts will be found most satisfactory, so far as the individual flower is concerned, but the single ones are quite their equal in decorative ability. This class of Begonia cannot be



FIG 23—SINGLE AND DOUBLE TUBEROUS BEGONIAS

too highly recommended, especially for the summer decoration of the greenhouse. A frilled or fringed sort of recent introduction is offered as a great improvement on the original type. Sprays of single and double Tuberous Begonias are shown in Fig 23.

For a list of flowering Begonias having fine foliage, see chapter on Decorative Plants.

The Rose

Every lover of flowers would like to grow Roses. But, as a general thing, few amateurs succeed with them. One reason why they fail is—they select varieties unsuited to house culture. Another is—they do not give them proper treatment. The Rose likes a rather heavy soil—something that will be close and firm about its roots—and such a soil most persons do not furnish for their plants, thinking they will not do well in it. But use a loam containing some clay for your Roses, make it rich with bone meal, and you will find that they do much better than in a light, open soil. Have their pots drained well, and do not use large ones, as this plant does not have many roots. In potting, see that the soil is made as firm as possible about the plants. Do not allow those intended for winter flowering to bloom in summer. Cut them back well, until the last of September. Look out for the aphid and the red spider, both of which are sure to attack them, whether in greenhouse or window garden. Keep tobacco stalks and leaves on the soil about the plants and shower daily. Use all the precautions heretofore advised in fighting these pests, for success in their culture depends on your success in keeping insects under control.

The best varieties for the amateur to experiment with are:

Agrippina, crimson, with beautiful buds, and very fragrant.

Queen's Scarlet, crimson.

Hermosa, pink.

Clothilde Soupert, a member of the Polyantha branch of the family, is a good pot rose. Color, pearly rose; flowers very double, produced in large clusters.

It is with Roses as with Ferns—some persons succeed with them, while others fail. Those who have the "knack" of Rose-growing will find many varieties listed in the catalogs which they will do well to try.

CHAPTER XXVI

AZALEAS AND CAMELLIAS

The Azalea

There are few more beautiful plants than the *Azalea*. A half dozen varieties will give a succession of bloom for two or three months. A good plant will be literally covered with flowers. I have counted over one hundred on a plant not more than a foot and a half high.

It is greatly to be wondered at that we so seldom see this plant in the collections of amateurs. I think this is to be attributed to the fact that the impression prevails that it is a most difficult plant to grow well. As ordinarily grown, it is true that it generally fails to give satisfaction, but I think this is owing solely to wrong treatment, and that when the amateur comes to understand the requirements of the plant, and gives the treatment demanded, he can succeed with it under conditions where a Rose would be a failure.

The *Azalea* will not do well in a soil containing lime. If you cannot get a peat for it that is wholly free from lime I would not advise you to try to grow it, for, though the plants may live on from year to year, they will not flourish, consequently they will afford you no pleasure. If peat in which there is no lime is not attainable at home, send to some of the large florist firms at the East, and they can furnish you all you want. When it comes, mix with enough fine, sharp, gritty sand to make the mass light. In such a soil, packed firmly about the roots of your plants, you

will find that they will do well, provided proper care is given them in other ways.

The most important item, after getting proper soil, is watering. This plant does not require a great deal of water at its roots, but it wants just enough, and must never be allowed to get dry, for if it does it will often drop its buds before the flowering season begins, the buds being formed some months before blooming time. Its roots are very fine and grow in a thick, thread-like mass about the bottom of the stalk, and it frequently happens that the soil at this point is so compacted by many roots that it is a difficult matter for water to penetrate it. When water is applied it runs off into the looser soil about these roots, and the very place where moisture is most required is the very place which gets least. In consequence, the roots which fill this place where little moisture penetrates suffer, and this leads to an unhealthy condition, which results in dropping of the buds and often of the foliage also. It is a good plan to have the soil lower at the center of the pot than it is at the sides, so that the water you apply will run in toward the center, rather than away from it. If it does this, and you make small holes in the central mass by running a fork or something similar into it occasionally, the roots will be likely to get all the moisture they need.

But while it is of prime importance that the soil should be given all the water it requires, it is equally important that it should not be given too much. Too much water brings on decay of the fine and delicate roots. This must be guarded against by making sure that the soil in the pot is well drained.

The roots of the Azalea, being small and very fine, are produced in such compact masses that large pots are not required.

When the plants show signs of blooming, by enlargement of the buds at the ends of the branches, give a weekly watering with liquid manure, using it rather weak. It should never be darker than very weak tea. Cow manure is the best fertilizer of anything I have ever tried on this plant.

When in bloom, the plants should never be allowed to stand in the sunshine, as the flowers soon wither there, but if kept in shade they will last for several days.

After blooming is over, the annual period of growth begins. I continue the application of weak manure water all through the season of growth. The plants should be given plenty of light at this time, and all the fresh air possible, and they should not be kept in a very warm room. If they are the growth will be forced and weak. In fact, the best plants are always grown, and the finest flowers obtained, in houses where the temperature is not allowed to run high. It is a plant especially adapted to cool rooms, but, like the Geranium, it will do well under circumstances and conditions not just to its liking.

After completing their growth, I put my plants out of doors in a shaded, sheltered place where they are watched and watered carefully all the season. In order to attain success with them, they must never be neglected. They must be cared for properly during the growing season to induce a vigorous development of branches from which next season's flowers are to be produced: when these branches are developed, care must be taken that the buds which have formed shall receive as steady a supply of nourishment during their dormant season as possible. All the nourishment to be given at this period is that which comes from a regular and sufficient supply of water. Syringe daily.

When it is found necessary to repot a plant, attend

to it as soon as the flowering season is past, and before the plant begins to make its annual growth. In shifting, a pot one or two sizes larger than the old one will be large enough.

Indica alba is one of the finest white varieties. Good plants of this variety will be covered with large flowers of the purest white imaginable. *Flag of Truce*



FIG 24—A WELL-GROWN AZALEA

is a semi-double sort, with large flowers of pure white. It is quite a late bloomer. *Incarnata* is white striped with bright rose. *Perfection* is pale rose, very delicate and beautiful. *Criterion* is salmon, shading into clear white, with crimson spots on the upper petals. *Amana* is a rather small flower of rosy purple, early and very profuse. There are so many very fine varieties that

it is an extremely difficult matter to select the best. If you want to order, and do not know what to select from the catalogs, tell the dealer to whom the order is sent as nearly as possible what you want, and let him make the selection for you. I am quite sure you will be as well suited as you would be if you were to make the selection yourself, from the descriptions given.

Plants of three and four years of age, as sent out by the dealers, are almost always trained to a low tree form. They will be from a foot to a foot and a half in height, with a round, dense head of many small branches, as seen in Fig 24. The annual growth is not extensive, so that it takes a long time for a plant to become very large.

The Camellia

This once popular plant has fallen into disfavor because of its habit of dropping its buds before they are developed. The plant, however, is seldom as much to blame as its owner is. It forms its buds in summer months before blooming, when it makes its annual growth. After this period is when the danger comes in. If it is allowed to get dry at its roots its buds will fall, and if its soil is kept too wet, the same thing will happen. If the plant is given a cool, airy, shady place in summer, and care is taken to keep the soil evenly moist, all the time—and this can be done by watching it carefully—and too much heat is not given it, in fall, when brought into the house, and the air is kept moist as possible by frequent showerings, the amateur can grow it with reasonable hope of success. It is a superbly beautiful plant for rather cool rooms where the temperature fluctuates but little. Its flowers are produced in winter. They are of white, rose, cherry, salmon and red, perfect in form as any Rose,

with thick, wax-like petals having a luster like that of satin. The annual growth takes place after the flowering period. Give it *just* a bit of room and leaf mold, and provide good drainage. The conscientious amateur will do well to experiment with this magnificent plant. In the greenhouse the glass must be shaded over where the plant stands, or its young leaves will be scalded by the sun.

CHAPTER XXVII

GERANIUMS AND PELARGONIUMS

If I were asked to name the one flower best adapted to general culture I would most unhesitatingly name the Geranium as that flower. It is of the easiest culture. It succeeds under the most unfavorable conditions. It blooms continuously and profusely, and its colors are wonderfully rich and varied. We have no plant able to give a grander display in the greenhouse, during the greater part of the year, and what it can do in the greenhouse it is perfectly willing to do in the window garden. All it asks is good soil, water enough to keep its roots moist, but never wet, plenty of sunshine and immunity from frost. It stands heat, dry air, and frequent and sudden changes of temperature as no other plant does. Anybody *can* grow it, and everybody *ought* to grow it. The newer varieties are magnificent. A group of these is seen in Fig. 25. Those named in the list below have been selected from the best of recent introduction, and are the very finest of their class, and far superior to the older sorts commonly grown. They include varieties having flowers of the highest perfection of form, size and richness of color, freedom of bloom and general excellence as to habit. Any of them will be a revelation to those who have been growing the old kinds.

Chatcaubriand—Scarlet, shaded with maroon and veined with black.

Dauiniere—Rosy blue, blotched with white and spotted with violet.

Lord Kitchener—Soft scarlet and cherry red.

Mary Pelton—Salmon. A lovely flower.

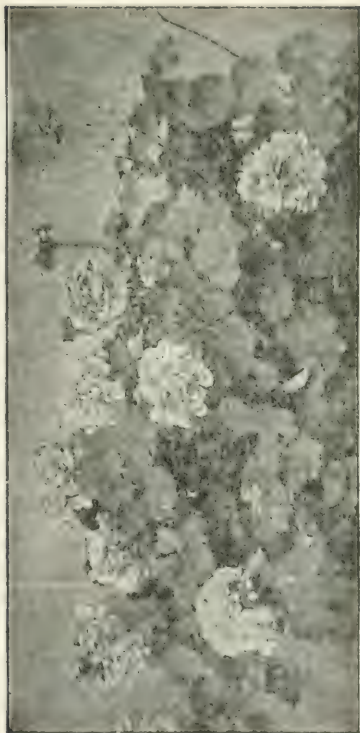


FIG 25—GROUP OF DOUBLE GERANIUMS

Oliver—A combination of white, magenta and scarlet.

Ponschkin—Violet, blotched with white on upper petals. Lower ones shading to rose.

The above varieties are single. The following six are double varieties:

J. B. Varronne—Intense carmine, with white eye.

Richelieu—Scarlet, orange and maroon.

Mme Carnot—Snow white.

Pasteur—Rich, glowing scarlet of a charming shade.

M Canovas—Deep, brilliant scarlet, shaded with maroon.

Jean Remeau—White veined with violet, petals edged with crimson.

The Ivy-leaved class should also come in for a share of hearty recommendation. These are of slender or trailing habit. Their flowers are of large size and fine form, and rich and delicate in coloring. Excellent for vases or baskets, or for use on screens. The following are new varieties of great merit:

Achievement—Soft, salmon rose.

Leopard—Pink, blotched with carmine. Resembles the Pelargonium in its peculiar combination and contrasts of color. Very fine.

Bride—Pure white.

No collection should be without some of the fragrant-leaved sorts, like Rose, Apple, Nutmeg and others. These are not only beautiful plants, but their deliciously scented leaves will be found very useful in making up bouquets and in all cut flower work.

A list of fine foliaged Geraniums will be found in the chapters on Decorative Foliage Plants.

Pelargonium

The late Peter Henderson used to say that this class of plants gave the most gorgeous flowers of anything he had ever grown, and, were he obliged to select one plant for spring and summer decoration, his choice would be this. I agree with him. The flowers, which are larger than those of the Geranium, are also of fine form, some having crimped and ruffled petals which give them the appearance of being double, and they run through a list of the richest colors imaginable, with combinations of them that are simply dazzling. From pure white they range to carmine, with markings of darker or lighter shades of the same color, black, white and purple, sometimes in blotches, but often in featherings and delicate veinings. The darker and deeper colors are velvety in their richness.

While these plants do best in the greenhouse, they should always find a place in the window garden. After flowering, compel them to rest for two months, by keeping them quite dry. At the end of the period, cut back until you have only a stubby skeleton of a plant. Repot, shaking off from the roots all the old soil possible. Do not encourage much growth until the plants are in the house. Simply give water enough to keep them alive. They will do all the better, later on, for this enforced resting. As soon as brought in they will begin to grow. Give them a place near the glass, and keep them in a cool room. As they grow, pinch off the ends of the branches to make them bushy. The more branches you secure the more flowers you will have. Expose them fully to the sun. Tie the stalks to some stout support, and force the plants to form symmetrical specimens by persistently cutting off all branches that threaten to outgrow others. The aphids will be sure to attack them, but he can be kept

down by dipping the plants in the infusion of soap, heretofore advised, or by fumigation with tobacco stems and leaves. A bath is most effective, however, as it permits no insect to escape if the plants are entirely submerged.

CHAPTER XXVII

THE CARNATION AND THE FUCHSIA

The Carnation

Everybody knows and admires this superb and exquisitely fragrant flower, and every collection ought to contain several varieties of it. One fine Carnation is worth a score of ordinary blossoms. It is especially adapted to cultivation in cool rooms, where plenty of sunshine can be given it. The varieties now in general cultivation are far superior, in every way, to those of a few years ago. Their flowers are richer in color, of much greater size, and their calyx does not burst as that of the older varieties was almost sure to. They are also borne on long, stiff stalks, which makes them exceedingly useful for cut-flower work. We have no flowers more valuable for cutting, because they last for weeks if the water in which they are kept is frequently changed. It grows well in a loamy soil. It does not require a large pot, nor a very great deal of water, but it should never be allowed to get dry at the roots. It should be pinched back frequently during the summer, to secure bushy, compact growth. The red spider often troubles it, but it can be kept in check by daily showering. If the aphid appears, dip the plants in the solution of soap heretofore mentioned, at least once a week. Of late, this plant has been considerably troubled with a sort of bacterial disease, generally termed rust. This can be prevented by the application of Copperdine.

The following twelve varieties will be found among the best and most distinct sorts for amateur use:

Ethel Crocker—Pink. Large flower. Delightfully sweet.

Mrs Thomas W. Luteson—Dark pink. Large and of fine form.

The Marquis—Soft, rich shade of pink, with fringed petals. Free flowering.



FIG 26—MRS GEO M. BRADT CARNATIONS

Gen Gomez—Dark crimson, shading to maroon. Very fine fringed flower.

Gen Maceo—Scarlet. Dark and rich.

G. H. Crane—Brilliant shade of scarlet. Very sweet. Early.

Mrs G. M. Bradt—White striped with scarlet. A beautifully variegated flower. (Fig 26.)

Mayor Pingree—Lemon yellow, marked with rose, carmine and white. A superb variety.

Buttercup—Bright, rich yellow, streaked with carmine.

Gold Nugget—Yellow, feathered with red.

Daybreak—A very delicate flesh-pink. A great favorite. (Fig 27.)

Flora Hill—Pure white.



FIG 27—DAYBREAK CARNATIONS

The Fuchsia

This well-known old flower is a favorite everywhere, as it deserves to be. But it is seldom seen in perfection, because nearly everyone who grows it seems to be under the impression that it is—or ought to be—a winter bloomer, therefore, it is kept growing the year round. In consequence of this, the plant is never as strong as it would be if treated as a summer bloomer, which it is, with one or two exceptions. It should be allowed to rest for at least three months of each year. If this is done, it will bloom for a period of nearly six months, with the greatest profusion. But if this is *not* done, the vitality of the plant is so lowered that it is likely to make a weak growth, and its flowers will be fewer in number and greatly inferior.

The proper treatment of the plant is to put it in the cellar in November. There keep it as nearly dormant as possible, by withholding water until there is but little moisture in the soil. It does not matter if it sheds its foliage. In February or March bring it up, and go over it, cutting it back at least one-half—two-thirds might be better—and it will soon start into growth under the influence of water, light and warmth. Give it a soil of leaf mold, if possible, with considerable sharp sand in it, and have the pots well drained. Old plants will require considerable root room, as they do not do well when pot-bound. Repot as soon as growth begins, each spring.

It will grow in almost any soil, but it does its best in a light, open, spongy one. Turfy matter will be found a good substitute for leaf mold if the latter is not obtainable. It must be watered well. If allowed to get really dry at its roots, it will often drop its foliage and its buds. One drying out will give it a check from which it will not fully recover during the entire season. Therefore, watch it well in this respect.

It also likes a great deal of water on its foliage. It should be given a daily showering, all over. This keeps down the red spider, which is its worst enemy. If badly infested, it often loses its foliage. It likes the morning sun, but it will do well in partial shade. Never expose it to the hot sunshine of midday or afternoon. If treated as advised, it will bloom with wonderful freedom all summer, and continue to give flowers until well along into the fall.

I would advise the following varieties for general culture:

Arabella—White tube and sepals, corolla rose. Early. Single.

Black Prince—Carmine magenta, with violet corolla, fading to rose. A strong growing upright variety. Great bloomer. Single.

Gloire des Marches—Crimson sepals, white corolla. Double.

Minnesota—Sepals waxy white, corolla rose. Exquisite. Single.

Phenomenal—Crimson tube and sepals. Corolla a rich violet. Very double. Large flower. Desirable because of its strong growth and free flowering habit.

Speciosa—Old variety, but still the best of all for winter flowering. Flesh-colored sepals, carmine corolla. Strong grower and profuse bloomer. Should be allowed to droop. Keep it rather dry during summer, and cut it back well in August, if wanted for winter use.

CHAPTER XXIX

THE CHRYSANTHEMUM

In order to grow this favorite flower well, it is necessary to understand its nature and its needs. Plants grown by those who give it the same care they give all their plants may be satisfactory, in a degree, but their specimens will be greatly inferior to those grown by persons who give them proper treatment.

In the first place, the fact must be understood that the Chrysanthemum is a plant requiring a great deal of nutriment. It is a plant fond of rich food. Therefore a soil of ordinary fertility is not the kind of soil to grow it in if one desires that it should do its best. See that the soil you give it is very rich. Old, well-rotted barnyard manure is excellent as a basis of the compost. If this is not obtainable, use bone meal liberally. A tablespoonful to the amount of soil an eight or ten-inch pot will hold is not too much. Mix it in well with the loam which forms the body of the soil. This will do for the first months of the plant's growth. Later, as it begins to get ready for flowering, it will be well to give a liquid fertilizer, and to give it often. This produces great quantities of fine flowers.

In the second place it must be borne in mind that the Chrysanthemum is a plant that likes a great deal of water while making active growth. Often, during the hot weather of summer, two applications will be required daily—one at evening, and the other in the morning. It should never be allowed to get dry at the roots. If it does, it will have received a check which will interfere seriously with its development—one from which it will not be likely to recover

during the entire season—therefore see to it that its roots are always moist.

It also likes a good deal of root room. If kept in small pots it will become root-bound before the middle of summer, and this will give the plant a check quite as serious in its effects as that arising from an insufficient supply of water. It is advisable to start young plants off in three inch pots, but as soon as they have filled this size with roots they should be shifted to six-inch ones, and about the middle of July another shift should be given, this time to nine or ten-inch pots. In these the plants can be allowed to bloom.

I would advise keeping the plants in pots throughout the season, instead of planting them out in the open ground, and leaving them there until the first of September, as many growers of this plant advise. I do not approve of this plan, because it obliges us to lift them at the very time buds are forming. And no matter how carefully we do this work, the roots of the plants will be more or less disturbed, and any disturbances of the roots, at this time, when the buds are forming, must seriously interfere with the strong and satisfactory development of the flowers. It is true that plants in the open ground make a much stronger growth than those kept in pots, but by lifting and potting them in the fall we are obliged to sacrifice a good deal of this, therefore we gain nothing by putting them in the garden beds. Of course plants so treated will require much less attention, during the summer, than those kept in pots, but what is gained in this respect is more than offset by the labor required at repotting time and the check which the plants are sure to receive at a critical period of their life. Plants kept in pots escape these ordeals, and are under better control at all times.

Let them have all the air possible during the growing season. Shower them all over daily. If the aphid attacks them, apply an infusion of fir-tree oil soap. See that it reaches every part of the plant. Water used daily, in liberal quantities, all over the plants, will prevent the red spider from doing harm. If the plants are not showered frequently, this pest will be pretty sure to harm them. If you notice that the leaves are turning yellow, you may be sure that the red spider is at work on them, or that the roots are too dry. Examine the plant carefully, and give the treatment necessary to remedy the existing evil.

This is one of the most tractable of all plants. It can be trained as a tree, or allowed to grow in bush form. If the tree shape is preferred, keep all branches from forming while the plant is young, and encourage the production of a straight stalk to the height of two, three or four feet—or whatever height you want the head of the tree to be. Then nip off the top. Branches will start below, but remove all except those near the top of the stalk. When these have grown to be four or five inches long, nip their ends off. This will force them to send out branches. This second nipping will give a good foundation for the head of the tree, as a general thing. If it does not, keep on with the nipping process until you have as many branches as you think are needed. After this, let the branches lengthen at will. Plants trained in this manner should have a support for their main stalk, as they will be top heavy, and they are easily broken off by a sudden movement of their pot, or a strong wind. To grow the plant in shrubby form, it is only necessary to pinch off the top of the plant when not more than five or six inches high. Branches will start below, and these should all be allowed to grow.



FIG 28—SINGLE STEM CHRYSANTHEMUM IORA

The enormous flowers seen at the fall shows are secured by sacrificing all the buds on each shoot except the ones which seem to possess the most vigor. (Fig 28.) The flowers thus produced are interesting as

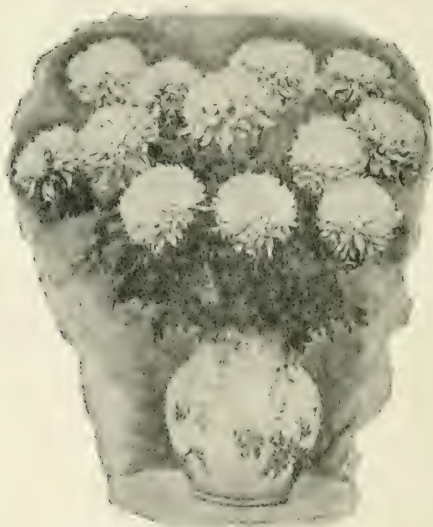


FIG 28—CHRYSANTHEMUM MRS FERRIN

curiosities, but they are not as beautiful as the smaller ones, of which we may have great quantities on each branch if we allow all the buds to grow which form there. (Fig 29.) A plant covered with these smaller,

but equally perfect flowers, is a thing of beauty which will afford vastly more pleasure than any plant can which bears but a blossom or two, of such enormous size that they are simply floral monstrosities.

It is a good plan to leave the plants out of doors as long as it is safe to do so. A slight frost will not injure them. When you bring them into the house, put them in a room without fire. Fire heat forces the plants to a rapid and weak development which is highly disastrous to their welfare. In a cool room you will have finer flowers and they will last much longer than when exposed to too much warmth.

After the flowering season is over cut away the entire top of the plant, and put the pot containing the roots in the cellar, if you desire to carry them over. Give no water during the entire winter, unless the soil seems to be getting dust-dry. In March the pots can be brought up, the soil moistened, light and warmth given, and in a short time young shoots will appear all over the surface of the soil. When these have made a growth of three or four inches, they can be cut away from the old plant, with a small piece of root attached, and put into small pots. It will generally be found more satisfactory, however, to get young plants each season from the florist, as these will be likely to give the finest flowers. A list of desirable kinds is not attempted because there are so many fine sorts that it is almost impossible to make a selection without leaving out some kinds quite as desirable as those chosen. It is a good plan to go over the lists and select those of the colors you prefer. If this is done, you will be pretty sure to be satisfied with your own selection.

CHAPTER XXX

PALMS

Popular interest in plants having ornamental foliage has rapidly increased during the past few years. Some of them will be found in almost all collections, and each season sees an addition made to the list, in most homes, because the owners have discovered that this class of plants generally give better satisfaction than flowering plants under the conditions which prevail in most dwellings. They adapt themselves much more readily to sudden changes of temperature, light, and other atmospheric conditions which exist in the ordinary living room. A fine specimen of any plant with pleasing foliage is always attractive, while ordinary flowering plants are not particularly so unless in bloom. It has taken some time to educate people to an appreciation of the great merits of decorative plants, but of late they have become fully alive to the fact that they are really the most satisfactory of all plants, if a proper selection is made.

No well-appointed room is complete without one or more handsome foliage plants. With proper care in selection, varieties can be found which are fully able to adapt themselves to any condition. The Palm is probably the most popular decorative plant at present. It is a very easy plant to manage, if its wants are understood, but the frequency of requests for information regarding its cultivation shows that there is need of more general knowledge concerning the plant and its requirements, and this need I shall try to meet in what I have to say in the following paragraphs.

To grow the Palm well it is essential that we give it good soil, good drainage, and proper care. It seems to do best in a soil of loam containing some clay. Its roots are strong and fleshy, and like to feel themselves firmly supported by the soil in which they grow. These roots have a tendency to run down, instead of spreading out, and the best pot for a Palm is a deep one rather than a broad one. It is a difficult matter, however, to feed such pots, but good substitutes for them are furnished by the tubs and boxes sold by leading florists.

Good drainage is of the greatest importance. If it is not provided, surplus water will be retained about the roots of the plant, and this will lead to scorching of the soil. This condition always brings on an unhealthy action of the roots, the result of which is soon seen in the yellowing of the tips of the leaves. By and by the entire leaf turns brown, and has to be cut away. When four or five leaves have been lost in this way, the average plant is past its usefulness for decorative purposes, for most varieties produce leaves so slowly that they can never afford to lose many of them. I find that more trouble in growing this plant satisfactorily originates from poor drainage than from all other causes. Therefore, the amateur should be sure to see that each pot has at least three inches of broken crockery, brick or charcoal in the bottom of it, to prevent the soil from washing down and clogging the hole in it. A layer of sphagnum or cocoa fiber over the drainage material, before filling in with soil, is of great benefit, as it will prevent the water from carrying down soil enough to close the cracks and crevices, while it will in no way interfere with the passage of surplus water.

Great care must be exercised as regards watering. As most decorative plants are used at some distance

from the window, as a general thing, and are kept there for days at a time, evaporation will be slow. It is a mistake to give more water while the soil remains moist. Wait until the surface of it appears dry, and then give enough to thoroughly saturate all in the pot.

Some persons seem to have the idea that plants used for the decoration of hall or parlor can be placed in a corner, or some other place some distance from good light, and left there indefinitely, without injury. This is not the case. These plants, to remain in health, must be given a chance at the window, and kept in the best possible light while not doing duty for decorative purposes. By this it is not meant that they should have full sunshine. They do better without it. But they should be placed near the window whenever they are not needed elsewhere in the room. It is a good plan to have at least half a dozen plants. They can then be used alternately, some doing decorative duty, while others are recuperating from its effect.

Palms are often injured by insects. It is therefore necessary that they be watched carefully, and that precautions should be taken against the advance and entrenchment of the enemy. An ounce of prevention is worth a pound of cure in this case. Aim to keep the pests from getting a foothold. This can be done by the use of fir-tree oil or lemon oil, and sometimes by strong soapsuds, though the efficacy of the latter consists more in the scrubbing process which generally accompanies it than in its ability to keep in check the enemies of this class of plants. It is a good plan to procure a long-handled, stiff bristle brush, with which to apply whatever preparation is used, as this will enable you to get at parts of the plants which could not otherwise be easily reached. Work the brush down between the leaves and stalk, and scrub the base

of the plant well, using force enough to dislodge and remove any of the insects which may have congregated there. This is where the mealy bug will establish himself if not interfered with. It is quite necessary that he should be given to understand that his presence will not be tolerated, if you expect to keep your plants in good condition. Because he looks so much like a bit of cotton, he often escapes detection. As soon as you see small white specks here and there, generally between the leaf and main stalk, be sure that the mealy bug has come, and be prompt in the application of your remedies.

Scale is another deadly enemy of the Palm, as well as of most firm, smooth-leaved plants. Those who have never seen this troublesome creature will not be likely to suspect its presence for some time, because it is so small, unobtrusive and quiet in its operations. But very soon the appearance of a plant infested with it will go to show that there is trouble of some sort, somewhere, and a close investigation will lead to the discovery of flat brown particles, resembling a fish scale more than anything else, adhering to the leaves, and the base of the plant. As a general thing, they will be found most plentifully on the underside of the leaves. Scrape one of these off with a stick and you will find that beneath the scale or shell there is a live creature which sucks the life from the plant. The best remedy for this dangerous enemy of the Palm is the lemon or fir-tree oil application advised for fighting the mealy bug. Apply it with the bristle brush, and do it with sufficient force to remove the creature. Do not rest easy as long as a scale is to be seen. If plants are neglected until they become covered with insects it will be almost an impossibility to get them clean, and their vitality will soon be lowered beyond the safety point by their ravages, and a state of chronic

ill health sets in which soon makes the plants worthless for decorative purposes. On this account I lay particular stress on the importance of always keeping these plants clean. Act on the offensive. Take it for granted that insects will come if not headed off, and give them to understand by the thoroughness of your anticipatory maneuvers that they will not be tolerated.



FIG 30—LATANIA BORBONICA

It is much easier to keep them away from your plants than it is to get rid of them after they have taken possession of them. "A stitch in time saves nine" is an old saying which applies pertinently in this case.

Sometimes yellowing foliage shows that something is the matter, but no insects can be found. This being the case, it is safe to suspect that a fungous disease

is at work on the plant. Apply Copperdine as a remedy. It is a good plan to use this preparation about once a month, as a preventive of disease. No harm will be done to the plant if there is no real need for



FIG 31—ARECA LUTESCENS

it. If there is a need, its application will be found extremely beneficial.

Herewith I give a list of the Palms best adapted to general cultivation, with a brief description of the leading kinds:

Latania Borbonica (The "Fan Palm") (Fig 30)
- This is a very attractive plant when well grown. Its

large leaves have a spread of several feet, as the plant attains age. Of spreading rather than upright habit. It will be found most effective if given a pedestal to stand on. A fine specimen is one of the most ornamental features of the most elegant hall. It imparts an air of refinement and beauty to the place which the most costly and elaborate furniture cannot give. Of



FIG 32—COCOS WEDDELLIANA

extremely easy culture. A rapid grower. Ornamental when small, and increasing in beauty with age.

Areca lutescens (Fig 31)—A very beautiful Palm, with gracefully arching foliage, of a rich green. This species is a general favorite. Its habit of growth is all that could be desired. Whoever owns a fine specimen has something he may well be proud of. In buy-

ing it, it is well to procure what is called "made-up" plants instead of single ones. "Made-up" plants are formed by planting two, three or four plants of different sizes together, thus giving a bushy, compact effect which a single plant never has. The effect is that of a plant having several stalks from the same base. The



FIG 33—*KENTIA BELMOREANA*

price asked is not much more than that for single specimens, but the value of the plant, from a decorative standpoint, is greatly increased.

Cocos Weddelliana (Fig 32)—This is without doubt the most elegant small Palm in cultivation. Its foliage is delicate, and extremely graceful. The habit of the plant is charming. This sort is excellent for table decoration, either in pots by itself, or as the centerpiece of a fern dish. It is a very valuable plant



FIG 34—PHOENIX RECLINATA

for this purpose, as it is of slow growth, and is a long time in outgrowing its usefulness. One of the standard sorts.

Cocos insignis—This species is similar to *C. Weddelliana*, except that its foliage is heavier, and of stronger growth. "Made-up" specimens are charming ornaments for a small table by the window.

Calamus ciliaris—A fine sort for table decoration, or for jardiniere use. Of reed-like growth, with pinnate leaves.

Kentias—These are among the most useful members of the great Palm family. They will endure more rough usage without resentment than any other kind, with the possible exception of *L. Borbonica*. *Kentia Belmoreana* (Fig 33), often known as "the Curly Palm," is of somewhat spreading habit, while *K. Forsteriana* is of stronger growth, with heavier foliage. These sorts stand dry air and dust, and frequent changes of temperature, and are to be recommended as the best kinds for the amateur to begin with. Well cared for, they are good for years. "Made-up" plants are advised, because of the greater mass of foliage from the pot up which is secured by this method of planting.

Phoenix—The Phoenix Palms are extremely hardy, standing sun and wind better than any other species. On this account they are well adapted for use in vases for the lawn, in summer, and other outdoor work where most other Palms would be worthless. Large specimens are fine for use on the veranda. *P. Canariensis* is especially valuable for this purpose. *P. reclinata* (Fig 34) is of spreading habit. It grows rapidly, and remains in good condition for years. It can be wintered in the cellar, as can all the Phoenix Palms, if it is not convenient to keep them in the living room. *P. rupicola* is the most attractive species, with spreading foliage, gracefully arching away from the center of the plant. Pinnæ long and narrow. A charming kind for the amateur.

Ptychosperma Alexandrac—A Palm of graceful habit, with broad, pinnated foliage, light green above, whitish-green below. A very rapid grower. A most desirable sort.

Rhapis flabelliformis and *R. humilis*—Very pleasing Palms, with slender, graceful stems, and leaves cleft in five to seven divisions. They sucker freely and therefore form bushy and compact specimens without having to be made up. Fig 34^{1,2} shows a good specimen of *R. humilis* or Rattan Palm.



FIG 34 1-2—RHAPIS HUMILIS

CHAPTER XXXI

FERNS

Ferns are among the most beautiful of all plants. They would be much more generally cultivated than they are at present, were it not for the fact that most persons have the impression that they cannot be grown successfully in the window garden. This impression is not a correct one, for many varieties of them *are* grown there and *well* grown. Failure, as a general thing, comes from neglect to give the plants proper attention rather than from their inability, or their unwillingness to adapt themselves to existing conditions. While it is advisable to select the stronger varieties for ordinary cultivation, I would advise a trial of other kinds, even the finer *Adiantums*, because I know that these do well with some persons, under conditions not generally considered favorable to them. This, no doubt, because these persons give them careful attention, and do all they can to make the conditions under which they are grown as favorable as possible to their requirements. They are unlike other plants in their habits and needs, and must be given a treatment suited to their peculiarities. This done, they will be found much more tractable than many other plants seen in the window garden.

For use in *jardinières*, and for table decoration, nothing can be finer, and a few plants should always be grown to furnish greenery to accompany flowers from the window garden. The study and cultivation of these superbly beautiful plants will be found extremely fascinating—so much so that many persons develop into “Fern cranks”—and those who achieve

success in their culture through intelligent treatment of them will be sure to become the owners of fine collections made up of the leading kinds, for success with some of the hardier sorts, at first, will lead to success with the more delicate kinds later on. The enthusiastic amateur will never be satisfied with a few varieties when he finds that he can grow an extensive list of them.

Ferns like a rather moist atmosphere. Of course one like that surrounding them in their native habitat cannot be given in the living room, but the prevailing dryness of the air in such rooms can be modified to a considerable extent by keeping water constantly evaporating on stoves, registers or radiators. Showering about the plants will also be found of great benefit in tempering the atmosphere. It is a very good plan to keep them on tables covered with an inch or two of sand, or moss, which can be kept quite wet, thus securing a steady evaporation among the plants. Some sorts are not averse to a shower bath, but others object to it. If showering is to be done, let it be in the form of a fine spray—a mist, rather—and do not carry it to such an extent that the delicate foliage is heavily saturated. Keep the plants out of the sun. Drain their pots perfectly. This is of great importance. If drainage is not good, there is great danger of souring the soil, and this brings on weakness and disease of the roots. If drainage is what it ought to be, a great deal of water can be used without running any risk of injury, because all that the soil does not need passes off readily. Never allow the roots to get dry. This is another very important item. Because light, spongy soil is generally used to grow them in, evaporation will take place rapidly, in a warm room, careful and constant watch must be kept of them and enough water be given to keep the soil always moist.

The best soil for Ferns is one of leaf mold and sand. But any light, spongy soil made porous and friable with sharp sand will do very well for most varieties. It should have sponginess enough to prevent it from becoming hard and compact. Turfy matter, such as has been spoken of in the chapter on soils, will supply this quality if leaf mold is not obtainable.

The species and varieties described below will be found especially desirable for the window garden.

Alsophila Australis—One of the noblest tree Ferns, beautiful in all stages of growth. The fronds spread out from an upright trunk, curving gracefully, and showing delicate contrasts of dark and glaucous green. Care must be taken to supply water liberally.

Cibotium Schiedei—Another fine tree Fern, with broad, finely cut foliage. One of the most graceful of large-growing Ferns, particularly well adapted to house culture. It is an old species, but very rare, because of the slowness and difficulty with which it is propagated. The person who is willing to give proper care to his or her plants will find this Fern a most desirable one to invest in.

Cyrtomium falcatum—The Holly Fern. A charming sort for house culture. Foliage rich dark green, with a shining luster, as if varnished. Excellent for table decoration, while young. A very distinct Fern.

Davallia stricta—One of the old "standbys." This belongs to the class of Hare-foot Ferns, so called, because they spread by creeping rhizomes which are supposed to have some resemblance to a hare's foot. The foliage is lace-like in its beauty and the habit of growth very graceful. One of the best for general cultivation.

Nephrolepis cordata compacta—A very desirable variety of the Sword Fern genus, because of its strong growing compact habit. Will succeed perfectly

in the living room. A fine plant for general decorative purposes.

Nephrolepis Davalliodes furcans—A beautiful variety of the Sword Fern, with crested fronds. Excellent for house culture.

Nephrolepis exaltata Bostoniensis—The wonderfully popular "Boston Fern" (Fig 35). One of the very finest plants that can be chosen for culture in the



FIG 35—THE BOSTON FERN

window garden. Good specimens will have scores of fronds four feet in length, of gracefully spreading and drooping habit. A well-grown plant is a veritable fountain of foliage. This variety should be included in every collection. Charming for use on pedestals or brackets, and equally useful in large hanging pots. Anyone can grow it.

Nephrolepis With Mu—A variety of very recent introduction, and one that will become extremely popular as soon as its merits are more generally known. It is of more upright habit than the "Boston Fern," from which it is a sport. Its fronds are wider than those of that variety. The edges of each leaflet are crimped or waved in such a manner as to make it entirely distinct from any other member of its family. The undulations of the leaf edges give it a most charming appearance, and those who see it will be sure to want to add it to their collection. Because of its upright habit, it has more dignity than the Boston Fern. Its fronds last well after cutting, and are therefore very valuable for general decorative work. A variety that cannot be too highly commended.

Pteris serrulata cristata—A variety of rather dwarf habit. Fine for cutting.

Pteris tremula—One of the old favorites. Should be in all collections.

Pteris tremula Smithiana—A variety with large, dark green fronds, the ends of the pinnae branching in such a manner as to give them the appearance of being tasseled. One of the most desirable large-growing kinds.

Sitolobium cicutarium—An excellent sort. Very easy to grow. Foliage large and striking.

Adiantum cuneatum—The popular Maiden Hair Fern. Always and deservedly a favorite. Easy to grow if kept moist at the roots. Beautiful for room decoration, for the greenhouse and for cutting. Every collection should contain at least one plant of it.

Adiantum rhodophyllum—A variety bearing a close resemblance to the Farlevense Fern, which many consider the finest of all Ferns, but much better adapted to general culture. Foliage rich and heavy, of clear, bright green. A magnificent sort.

Adiantum formosum—Strong, tall grower. Makes fine specimen plants.

Adiantum tenerum—A most desirable variety for growing into specimen plants. Foliage delicate and fine.

Adiantum gracillimum—The daintiest of all Ferns. Foliage so fine as to give the plant the appearance of being covered with a green mist, at a little distance. Exquisite. Though extremely delicate in general appearance it has as strong a constitution as any of the *Adiantums*.

Aspidium tenuissimum—A charming little Fern for growing in fern dishes, and for table decoration.

The list of desirable Ferns might be extended for pages. I have made special mention of the kinds described above, because the amateur may desire some assistance in making a selection of those best adapted to the wants of the beginner in Fern culture. Success with the above will enable him or her to attempt the culture of other sorts with reasonable certainty of success. I would most urgently advise every lover of the beautiful in decorative plants to invest in at least a few Ferns, because I know that no other plant can give better satisfaction.

CHAPTER XXXII

MISCELLANEOUS DECORATIVE PLANTS

Araucarias

The *Araucaria* (Norfolk Island Pine) is fast becoming a favorite with all who grow it. It is so unlike all other plants in general cultivation that it forms a most desirable and important addition to all collections. It does best in a cool room. In the ordinary living room it is likely to become infested with red spider and thrip. These, if not promptly checked, so affect the plant that it loses its lower tiers of foliage, thus greatly marring the beauty and symmetry of the plant. The foliage is thick and heavy, like that of most evergreens, and the branches are so densely covered with it that they form excellent quarters for the thrip and spider to hide in. Quite often their presence is not suspected until the foliage turns yellow and begins to drop. As soon as either of these pests is discovered, prepare an infusion of soap, as directed in the chapter on insecticides, and dip the plant in it. Shake it about well, while in the bath, to dislodge as many of the insects as possible. It is a good plan to give a semi-monthly or a weekly bath of this kind when no insects are to be found on the plant, as, by so doing, it is often possible to head them off and prevent them from getting established.

If this treatment does not prove entirely satisfactory, use lemon oil, or fir tree oil, prepared and applied according to directions on the can containing it.

For cool, but frost-proof rooms, this plant cannot be too highly recommended. Fine specimens are stately ornaments for the greenhouse, and will be

found admirable for hall use. *A. excelsa* (Fig 36) is the leading species, because it was first introduced. It is therefore better known than *A. glauca* or *A. robusta compacta*. *A. glauca* has foliage of a rich blue-green. *A. robusta compacta* is a strong grower of very compact growth, and most symmetrical habit. Its heavily



FIG 36—ARAUCARIA EXCELSA

foliated branches appear to be covered with moss, so thickly set are they with the rich, deep green foliage. The two last named kinds have been very high priced, until within a few years, because of their scarcity, but they are now grown in large quantities, and very fine specimens can be bought for a reasonable sum.

Aralias

Aralia Sieboldi is an excellent house plant, with large, thick, shining foliage. A popular rival of the Ficus or Rubber Plant. Very easy to grow into fine, stately specimen plants, and useful in hall or parlor decoration. Used in immense quantities in Europe for decorative purposes, but little known here as yet. This plant will, I predict, be extremely popular as soon as the public becomes familiar with its many merits. *A. Sieboldi variegata* is a variety of the above having foliage richly variegated with creamy white. Beautiful.

The Ardisia

Ardisia crenulata—A plant of medium size, with rich, dark, shining evergreen foliage, bearing clusters of bright red berries. Excellent for table decoration, where the fruit is quite as effective as flowers. Plants can be summered by plunging the pot to its rim in a shaded place.

The Aspidistra

Aspidistra lurida—One of the toughest of all plants. Will grow any and everywhere, under the most unfavorable conditions. Can stand anything but absolute dryness at its roots and freezing temperature. Foliage long and broad, of thick, leathery texture, each leaf being thrown up from the root, as there are no branches. Adapted to cool, poorly-lighted rooms. Seldom attacked by any insect. Used in enormous quantities on the Continent, because of its hardiness, and its ability to adapt itself to places where no other plant would grow. Cannot be too highly recommended. Because it will flourish under neglect is no reason why it should be neglected. If it is well cared

for it will show its gratitude by richness and vigor of foliage, and prove its right to a place in the list of our best decorative plants.

A. lurida variegata (Fig 37)—A beautiful form of the above, with foliage striped with yellow and



FIG 37—*ASPIDISTRA LURIDA VARIEGATA*

white. Some leaves will be half green, others nearly all light colored, while many will be marked with narrow stripes of yellow or white in a most picturesque fashion. Quite as desirable as the type.

Anthericum

This is an excellent plant for vases or window boxes. Of easy culture. Foliage resembles the old-fashioned "Striped Grass," often seen in old gardens. There are two varieties, *A. variegata* having green leaves edged with white, while *A. variegata picturatum* has a white center and green edge. Fine for hanging pots.

Asparagus

Asparagus Sprengeri (Fig 38).—One of our very best drooping or trailing plants. Easy to grow and always beautiful because of the profusion of its long branches, thickly set with dark green foliage, giving the plant an airy, feathery appearance which has led to its popular name of "Emerald Feather." Few plants last as this does, when cut. Branches can be kept fresh for weeks. Not only beautiful in itself, but very useful for combining with other plants. Especially valuable for room decoration, on mantels, brackets and other elevated positions where its drooping habit can be displayed to good advantage. Excellent for hanging baskets. Does well in any good soil. Likes a shady place, and considerable water, and will be grateful for a daily showering. One of the most valuable plants of recent introduction. It cannot be recommended too highly.

A. plumosus nanus.—A variety with dainty, delicate foliage which lasts for a long time when cut. Rapidly taking the place of Smilax in decorations. A charming plant. Likes a rather sandy soil.

A. plumosus tenuissimus.—A variety with extremely fine, feathery foliage. Of climbing habit. Has all the lasting qualities of the other varieties described. Exquisite for use with fine cut flowers.



FIG 38—*ASPARAGUS SPRENGERI*

The Sago Palm

Cycas revoluta—The Sago Palm. A stately plant that always challenges admiration because of its noble habit and peculiar foliage, which is of thick, heavy texture, therefore able to resist dust and other drawbacks which most decorative plants are subjected to. Well adapted to use in a cool, shady room. A grand plant.

The Umbrella Plant

Cyperus alternifolius—The Umbrella Plant. One of our best plants for growing in aquariums and vases of water. Of easy culture. *C. variegatus* has foliage marked with yellowish-white.

Dracaenas

These plants are of great and varied beauty. Many of them are well adapted to sitting room culture. They have a peculiarly elegant and attractive habit of growth, and will be found very useful, either as single specimens or for combination with other plants of decorative character. The following kinds are especially recommended:

Amabilis—Foliage green, white and rosy violet.

Bruanti—Foliage heavy. Dark green. A good plant for the living room.

Fragrans—A fine species from Africa. Large, luxuriant foliage. A great favorite.

Imperialis—Foliage green, marked with rose.

Indivisa—Foliage long and narrow, gracefully curved. One of our standard plants for the center of vases. Fine for jardiniere use.

Lindeni—Foliage broad and undulated, with rich yellow striping on a bright green ground.

Massangana—A form of the above, with the variegation confined to the center of the leaf.

Sanderiana—Small foliage, heavily marked with white.

Terminalis—Foliage of various shades of red and rose, marked with white.

Brasiliensis (Fig 39)—Exceedingly handsome for the center of a vase or stand, forming a beautiful object.



FIG 39—DRACAENA BRASILIENSIS

The Rubber Plant

Ficus elastica—The Rubber Plant (Fig 40). Probably more popular than any other decorative plant except the Palm. Its large, heavy, shining foliage is very attractive, and because of its thick, leathery texture it is able to stand the effects of dust and dry air better than almost any other plant. Of the easiest culture. Care should be taken to keep it free from



FIG 40—FICUS ELASTICA

scale and fungous diseases. Should these attack it, apply the remedies advised in the chapter on insecticides. An excellent plant for use in halls and the corner of rooms where a plant of tall and stately appearance is desired.

F. variegata is a superb variety having broad markings of creamy white on a dark green ground. Unfortunately, this variety is frequently subject to a fungous disease, but the weekly application of Copperdine should keep it in health.

F. repens is a creeping, climbing species with small foliage. Fine for baskets, or growing about Palms or other plants to furnish a covering for the soil.

Farfugium

Farfugium grande—The Leopard Plant. Foliage of thick, firm texture, nearly circular in shape, very dark green, heavily spotted with clear yellow. Fine plant for jardinières. Large specimens are very ornamental. Give plenty of water and keep out of the sun.

The Screw Pine

Pandanus utilis—Screw Pine (Fig 41). Fine plant for use in vases, as a centerpiece. Foliage long, narrow and recurved, with sharp, needle-like spines all along the edge. The leaves are produced spirally along the stalk, hence the popular name of the plant. Leaves green, marked with red.

P. Veitchii—A species having foliage striped with white. A most attractive plant. These plants should have a warm place in winter, and must be watered moderately at that season, as they are easily injured by too much moisture at their roots.

New Zealand Flax

Phormium tenax—New Zealand Flax. Long, stiff foliage like that of the Swamp Flag. *P. variegatum* is striped with pale yellow and white. Both fine plants for vases in summer.



FIG 41—THE SCREW PINE

Vriesia

Vriesia splendens.—A most peculiar plant, with broad, thick foliage of light green, with brown bars across the leaf. Flowers yellow, set in bracts of rich scarlet, which retain their color for a long time. A very striking plant in all ways, and one well adapted to culture in a dry atmosphere.

The Silk Oak

Grevillea robusta—A very beautiful plant, with large, spreading foliage almost as finely cut as that of some of the Ferns. It is often attacked by red spider and thrip, but these can be controlled by the use of insecticides heretofore advised. The plant is of rapid growth, and soon becomes quite a tree. Young plants are valuable for table decoration.

Rex Begonias

Begonia rex—We have few plants more beautiful in coloring than these. Their large, rich foliage, in which green of all shades is blended with silver, bronze and red and purple, makes them wonderfully attractive. In some varieties, the entire leaf seems overlaid with metallic colors having a satiny luster indescribably charming. In others the variegation is disposed in bands and blotches of rich colors on a ground of green, while some sorts seem powdered with silver dust through which tints of plum and purple show with delicate effect. A well-grown plant is always sure to attract and fascinate the lover of beautifully colored foliage.

These Begonias can be grown in the living room if care is taken to keep the soil moist only—never wet—and they are not given large pots while young. They have small roots, and do not require much pot room during the first year. Do not give them sunshine and never shower the foliage. To keep them clean, cover with papers or a thin cloth, when sweeping and dusting. If mealy bugs attack them, remove with a soft brush. Cut away all buds that form, as soon as seen, to throw all the strength of the plant into the production of foliage. Some persons are not successful with these Begonias in the window garden, while

others consider them very satisfactory there. Probably because they have studied their habits and give them the treatment they demand. I would advise all lovers of beautiful plants to give them a trial before deciding that they cannot grow them. They should have a light, spongy, porous soil in which considerable sharp sand has been mixed, and the very best of drainage.

Flowering Begonias with Fine Foliage

B. argentea guttata is of sturdy, upright growth, with foliage of rich bronze green, thickly spotted with silver. Its flowers are a soft, pearly flesh color, borne in drooping panicles. Very fine both as a flowering and as a decorative foliage plant. Of the easiest culture.

B. alba picta—Foliage bright green, spotted with white.

B. metallica—Hairy foliage, bronze green, with coppery luster on upper surface. Veins dark red, showing through the leaf. A strong-growing kind, making a very attractive specimen plant.

B. manicata aurea variegata—A beautiful variety, of spreading habit, with large, thick, waxen foliage of a rich, shining green, irregularly blotched with cream, clear yellow and rose. A superb plant for a large vase. One of the best Begonias for general cultivation. A fine plant for jardiniere use.

Geraniums with Attractive Foliage

Madam Salleroi—An always satisfactory and always useful variety. Habit bushy and compact. Seldom grows to be more than eight inches or a foot high. Always symmetrical. Never requires pruning. Foliage borne in such quantities that the plant and pot

are covered with a mass of green and white. One of our most useful plants for "filling in," either in the greenhouse, the window garden or in room decoration.

Happy Thought—Foliage green with a yellow blotch in center of leaf. Showy and easy to grow.

McMahon—Foliage yellowish-green, with dark bronze zone. Must be given strong sunshine to bring out the coloring well. Fine for greenhouse use, if given a place near the glass. Equally as fine for the window garden if it can have sufficient sunshine. Of little value in a shady location.

Flaming Star

Poinsettia—A tropical plant of great beauty. The flowers, which are small and insignificant, are surrounded by bracts of the most intense scarlet, which last for a long time. It can be grown to the best advantage in sandy soil. Keep rather dry during summer. Repot in September, and keep growing well thereafter. If given a warm place and a moist atmosphere, it should come into bloom in January. Shower well to keep red spider down. Give plenty of sunshine to bring out the gorgeous coloring of the bracts. Immediately after flowering, let the plant dry off. It does not matter if it sheds its foliage at this time. A magnificent plant for the decoration of the greenhouse.

Smilax

Smilax is a good plant for the window garden if given the right kind of treatment. It should have a rich, light, sandy soil. When growth sets in, give plenty of water. Shower often to prevent the red spider from injuring it. After it has completed its growing period, the leaves will begin to turn yellow.

This indicates a desire to rest. Cut off the top and withhold water for two months. Then shake the roots out of the old soil, repot, give more water and it will soon begin to grow again. As growth becomes active, give plenty of fertilizer. A very useful plant for cutting for decorative purposes, as it lasts well.

Abutilons with Attractive Foliage

The flowering varieties of this plant are better known than the sorts having variegated foliage. But there are several varieties whose foliage is quite as fine as that of most plants described in these chapters. *Souvenir de Bonn* is a strong, upright-growing kind, having large leaves of a light green, edged with white. *Savitzii* is more bushy and compact. Its foliage has a variegation of creamy white, the two colors being about equally divided on each leaf. *Eclipse* is of drooping habit, and is fine for growing on brackets. Its leaves are long and pointed, and have a mosaic-like variegation of yellow on a green ground. *A. Thompsoni* is of sturdy, upright growth and has a variegation similar to that of *Eclipse*, but its leaves are broad and large.

CHAPTER XXXIII

VINES FOR HOUSE CULTURE

The Hoya

Hoya carnosa, more commonly known as Wax Plant, is a very good plant for cultivation in the sitting room, because, on account of the thick and leathery texture of its leaves, it is able to withstand the effects of dust and dry air better than most plants. It is also very fond of warmth, and therefore it can be trained about the upper part of a window, where it will flourish, while almost any other plant except the English Ivy would prove a failure there. It is a rapid grower when once it gets a start, but it must be given time to get well established before much in the way of growth can be expected from it. I often receive letters from parties who have owned plants of the Hoya for several years, during all of which time they have seemed to stand still. In most cases I have satisfied myself, on inquiry, that the likings of the plant as to soil, location and care had not been given proper consideration, and it had not become thoroughly established. It lived, and put forth a few leaves, now and then, but it had no encouragement to make vigorous growth. I have always advised a treatment like that outlined below, and in most cases the result has been all that was desired.

The Hoya has very dark, heavy foliage. It often grows to be twenty or more feet in length. Its flowers are produced at the junction of leaf and stem, and are in drooping clusters of about the size and shape of the Verbena. They are flesh-colored, with a brown, star-shaped protuberance in the center. They

have a very pleasing fragrance. While not showy, they are very beautiful, and as they are freely produced and last a long time, the plant is sure to be popular when it is treated in such a manner as to bring about good results. The new branches make a very rapid growth, and often reach a length of four or five feet without developing foliage. They look more like large, elongated and uncurled tendrils than anything else. After a little the leaves develop. The first sign of flowering is a little brown stem, which seems to be nothing more. This, as I have said, appears at the junction of the leaf stalk and vine. By and by you will notice that the end of the stem seems to be dividing, and a close examination will satisfy you that the divisions are rudimentary buds. These develop slowly, and finally become flowers. You must not remove these "stems" after the flowers have withered and fallen from them, for next season new flowers will be produced on them. Therefore in cutting off any of them you are destroying a future crop, or crops, of flowers.

The Hoya likes a soil made up of peat, loam and sand in equal parts. It does not require much moisture at the roots. It has but few roots, therefore does not require a large pot. If liquid manure is given at flowering time the size of the flowers will be increased. The only insect I have ever known it to be troubled by is the mealy bug. To drive this away, apply the emulsion of kerosene, prepared as directed in a former chapter.

The Cobaea

This is an excellent vine for training about the arch and ceiling of a bay window. It is a very rapid grower, often making twenty feet in a season. The most attractive variety is *C. variegata*, having leaves

prettily marbled with cream color. It has a large, bell-shaped flower of a peculiar greenish-blue. It grows well in ordinary soil, and requires only a moderate amount of moisture. It must be given a good-sized pot to insure proper development.

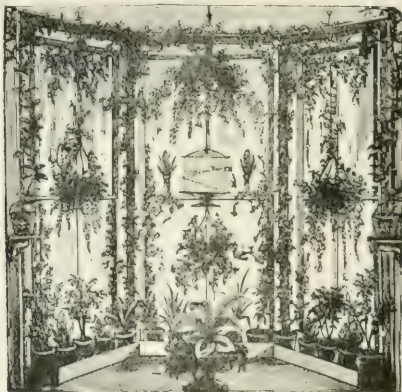


FIG. 42—ARTISTICALLY ARRANGED BAY WINDOW

The Passion Flower

Of late, this class of flowers has become very popular. Some years ago a white variety, called Constance Elliott, was introduced, and attractively illustrated in most of the florists' catalogs, and the advertisement thus given this particular variety of the *Passiflora* family has resulted in an increased demand for most other varieties. They are all rapid growers, with large and attractive foliage. I do not

think many plants bloom much the first season, but if given good care and plenty of root room they bloom profusely the second year. They like a rich loam, with weekly applications of manure water. They must be given a large tub or box to grow in. If kept in too small a pot the leaves will often turn yellow and fall quite suddenly. Constance Elliott has large flowers of a greenish-white. Before expanding fully they resemble a Pond Lily bud. *P. coerulea* is blue. The latest variety is Eynsford Gem, of a beautiful, bright rosy-purple. In constancy of flowering it seems superior to any other variety. This plant, like the Coboea, is very effective when trained about the arch of a bay window, where it can be allowed to droop and festoon itself after its own ideas of what is graceful and pleasing. Such a window intertwined with *Passiflora*, *Coboea*, *Hoya* and other vines is shown in Fig 42.

The Solanum

Solanum jasminoides is one of the prettiest of all small climbers. It has pleasing foliage, and produces great quantities of star-shaped flowers, white, faintly tinged with pearly lilac. It grows to be ten or twelve feet high, branching freely. I consider it one of the best flowering climbing plants for the house. It requires the same treatment as the Passion Flower. It is much more satisfactory than that plant for the ordinary window, because it is a less rampant grower and does not ask for a large pot.

The English Ivy

Of all vines for house culture there is none that excels, or equals, this. It is the vine *par excellence* of all vines for the sitting room. It grows vigorously when once established, branches freely, stands dust,

dry, hot air, and frequent changes of temperature, can be trained in the shade, where it flourishes better than in the sun, and has rich and beautiful foliage, which only requires an occasional washing to look "as good as new," and, like good wine, the plant becomes better with age, if well treated. Truly an attractive list of good qualities, and one which ought to make any plant popular.

It requires ordinary soil. It should be well drained. Give only enough water to keep the soil moist. Apply liquid manure once a week, or once a month dig a spoonful of bone meal into the soil about the roots. Keep the foliage clean. Unless washed occasionally the scale may take possession of it, and when this happens you will find it a difficult matter to get the plant clean. It is better to go on the "ounce of prevention" plan and get a start of the scale by frequent scrubblings of the stalks and washings of the leaves in soapsuds.

This is the only vine I know of which can be trained about the room, away from direct light, without serious injury to its foliage. It never seems to care for sunlight. Its leaves take on a rich color in complete shade. An old plant, with vigorous branches, well leaved, is a constant source of pleasure because of its cheerful, sturdy look, and the beauty and grace of its foliage and habit of growth. It is charming to train about pictures, or the mirror, or around brackets holding statuary. The aim should always be to keep it in a condition of vigorous health, for if disease sets in it may lose many of its leaves before recovery is brought about, and long, naked branches spoil its pleasing effect. It likes a good deal of water on its foliage, and it must be kept clean if you want its charming masses of rich, dark leaves to show well against the background of wall or curtain. If properly

treated, it will make a growth of five or eight feet in a season, and in a few years you will have a sturdy old plant which will seem quite like one of the family. It can be trained on racks or trellises, but much of its pleasing effect is lost when it is forced to confine itself to definite and regular limits. It should be allowed to reach out in all directions, at its own pleasure, and then it will never be anything but graceful.



FIG 43—GERMAN IVY AND FERN BASKET

Senecio

Senecio—better known as German Ivy, though it is not even a distant relative of the Ivy family—is an excellent vine for summer use, because of its great

rapidity of growth. Planted about the veranda or at the window, in boxes, it will soon climb to the top of whatever support is given it, and droop in most graceful profusion therefrom. It grows easily from cuttings, stuck in ordinary soil, and one small plant, cut into two and three-inch lengths, with an "eye" beneath the soil, and another above it, will furnish all the plants one would care to make use of. As a window box or basket plant (Fig 43) it is especially valuable from its ability to climb, or its willingness to droop. It can be made to take on a bushy growth by pinching off the ends of the branches, and with this training it makes an extremely valuable plant for covering window and veranda boxes.

Madeira Vine

This is another rapid growing vine which will be found very useful for window or veranda box culture. Its foliage is heart-shaped, of a rich green in color, with a lustrous surface that makes it always attractive. It is grown from tubers. Give it a rich, light, sandy soil and plenty of water, and it will make a wonderful growth in a short time.

Thunbergia

This is a very pretty flowering vine which can be used as a screen, or for baskets. Its flowers are shaped something like those of the Gloxinia, and are blue, or blue and white. It can be grown from seed or from cuttings.

Asparagus Sprengeri

This is a comparatively new plant, but it has proved its claim to extraordinary merit, and no collection can be considered complete without it. As a

basket plant it is unexcelled. Its long branches are excellent for cutting, as they last for weeks, if the water in which they are placed is frequently changed. For room decoration, it is second to no plant. It will be found described at greater length in the chapter on Miscellaneous Decorative Plants.

CHAPTER XXXIV

BASKET PLANTS

The Lobelia

This is a most charming plant for a basket. *L. erinus compacta* has rich blue flowers, small, it is true, but borne in such profusion that the plant seems covered with a summer cloud. *L. erinus alba* is similar in habit, but pure white in color. If these two are grown together the effect is very fine. I know of no more delicate flowering plant for basket use than this. It blooms during the greater part of the season if sown in May. For winter use, sow in November. Prevent the formation of seed as much as possible, if you would have the greatest possible number of flowers. Shower well daily, to keep the red spider down. Give a shady place.

The Othonna

Othonna crassifolia is one of those cheerful looking plants which always win your friendship as well as your admiration. It has thick, round foliage, which, from its peculiar shape, has given it the name of Pickle Plant in some sections of the country. It is a dense grower, completely covering the basket with its drooping stems in a short time. It has bright yellow flowers, very much like a small, single Dandelion, and quite as cheerful in appearance. In order to secure these flowers in profusion you must give the plant plenty of sunshine. This furnished, there will be a score of them out every day. Indeed the plant will seem to be covered with little stars. It is one of the easiest of all plants to grow. Any little piece of vine will take root,

and soon become a thrifty plant. On account of the succulent nature of its foliage it is able to withstand quite a drouth. But because it can stand a good deal of neglect as regards watering, don't test its capacities in this direction.

The Tradescantia

The Tradescantia, or Wandering Jew, is quite a popular basket plant. It will stand more abuse and look cheerful and even happy under it, than any other plant I know of. It is rather a straggling grower if left to follow out its own inclinations. Therefore, in order to make it satisfactory for basket use it must be pinched back severely at first to force it to branch freely. Pinch it in, and keep it pinched in, until there are branches enough to furnish plenty of foliage to cover whatever it grows in. It must not be given a rich soil, for that favors the production of stalks with long joints between the leaves. In a poorer soil the joints will be close together and the foliage quite as satisfactory. *T. zebrina* has dark green leaves with a metallic luster and silvery bands running down them. *T. multicolor* has foliage of a lighter green, striped with white and pink. Break off a piece of the vine and throw it down where it can come in contact with the soil and it will be sure to grow.

The Saxifrage (Saxifraga sarmentosa)

This is a very pretty basket plant (Fig 44). It has leaves shaped something like those of the zonale Geranium, of a reddish olive color, veined with white. There will be a tuft of foliage at the end of a vine, much after the style of growth of a Strawberry plant with runners; at this tuft other runners will be sent out, each of which will terminate in a tuft of foliage, and in this manner the plant keeps on enlarging until

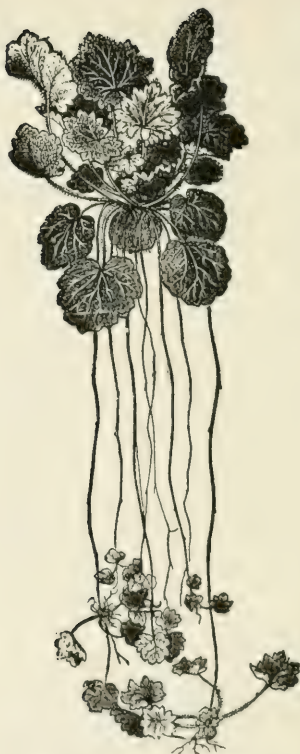


FIG 44—SAXIFRAGA SARMENTOSA

it covers a basket with its threadlike vines and pretty clusters of leaves. Give it ordinary soil, moderate amount of water, and shade.

The Vinca

The Vinca is a fine drooping plant, having rich, smooth foliage of a bright, shining green. *V. Harrisonii* has a leaf blushed with white and pale green in the center. *V. major variegata* has a leaf edged with white. All varieties have a pretty, light blue flower.

Sweet Alyssum

This is a pretty annual, having a great profusion of small white flowers, which are very fragrant. It is an excellent basket plant for winter, if sown late in the season. It is very fine for cutting.

The Linaria

Linaria cymbalaria, known in some localities as Kenilworth Ivy and in others as Coliseum Ivy, is a pretty basket plant, sending out a great profusion of slender branches, thickly set with small foliage. Of easiest cultivation.

Moneywort

This is a well-known old basket plant, having pretty green foliage and bright yellow flowers. It sends out many branches, which make a growth of two or three feet. It is a good plant, of very easy culture.

The Oxalis

This, in its several varieties, is one of the best flowering plants we can grow for winter use (Fig 13).

It should be potted in fall, several roots in a pot, and given a sunny place. It blooms profusely and constantly during the entire season.

The Trailing Lantana

This is a charming basket plant because of its free flowering qualities. Its flowers are similar in shape and size to those of the shrubby Lantana. In color they are a rosy mauve. They are produced with such profusion that the entire plant seems enveloped in a cloud of dainty bloom which hides the foliage almost completely. It can be cut back from time to time, and made to become very bushy and compact. It blooms during the greater part of the year, if allowed to have its own way. Plants for winter use, however, ought to be cut back sharply in August, and made to produce an entire new growth of branches for winter.

CHAPTER XXXV

BULBS FOR WINTER FLOWERING

No collection of flowers can be considered complete, nowadays, if it does not include a variety of bulbs so treated that they will come into bloom in midwinter when few other plants can be depended on to furnish flowers.

The amateur florist will have no trouble in flowering bulbs in the house if he or she is willing to be guided by certain rules which experience has proved to be good ones—rules which it is imperatively necessary to follow in order to insure complete success.

It must be borne in mind, when we bring a bulb into blossom in winter, that we are reversing the natural order of things, which is, that these plants shall be in a dormant condition at that time. It is an unnatural process, therefore, but in order to secure as great a measure of success as possible, we must follow the methods of Nature so far as we can understand them.

If we plant a bulb in the garden in September or October, it makes no visible growth of top that season. But if you were to dig it up any time before the closing in of winter, and examine it, you would find that it had begun to make root growth. All through the winter it goes on making active preparations for spring's work. As soon as the snow melts and the sun shines, it will send up a top, and the vigor of its growth depends largely on the condition in which its roots are. If there has been satisfactory development of them, this growth will be strong and healthy. If there is imperfect development, the growth of the top will be proportionately weak. It is therefore important that bulbs be planted as early as possible.

In potting bulbs from which we desire winter flowers, it is necessary, as I have said, to imitate the processes of nature, therefore, immediately after potting them, the bulbs must be put away in the dark to form roots before they are brought to the light. If put in the light as soon as potted, the roots and the top would begin to grow at the same time, and as there would be no strong roots to nourish and support the top, the development of that part of the plant would be weak, and if any flowers were produced they would be inferior ones. By putting the bulbs in the dark, we imitate the conditions which prevail when we put them in the ground, in fall. The dark place in which they are stored should also be a cool one. Were it warm, the top growth might begin prematurely, or before there were roots enough to support it properly. Growth of stalks and leaves is encouraged by warmth and light; growth of roots by darkness and low temperature. Therefore, if you want fine plants, give them ample opportunity to complete the latter growth first, and then bring them under conditions which will stimulate the development of leaves and flowers.

In this way—and in this way only—can we grow bulbs well, in the house. We are often told by those to whom this plan is recommended, that in their opinion it is simply a “whim,” but there is no “whim” about it. It is simply following out Nature’s plan. This method of starting bulbs is strictly scientific in its nature, if we may be allowed this use of the term in reference to a process which is an imitative one to a very great degree. Those who pot their bulbs and place them at once in the window will almost invariably fail with them, but by following the method outlined above success can always be depended on.

The proper soil in which to grow bulbs is made up of loam and well-rotted cow manure, with sand enough worked in to make the compost light and friable. It should be worked over until mellow. If cow manure is not available, use bone meal in the proportion of a teacupful to a half bushel of soil. On no account use fresh manure. It is sure to injure bulbs.

In potting, several bulbs can be grown in the same pot, if six, seven and eight-inch sizes are used. A much better effect is secured by massing them than can be obtained if they are grown singly. A five-inch pot is quite large enough to accommodate two bulbs of Hyacinth of ordinary size. A six-inch pot will be large enough for two larger bulbs, and a seven-inch pot will hold four bulbs, while five and six bulbs can be grown in an eight-inch pot.

Cover the bulbs to the depth of about an inch, water them well, to settle the soil about them, and then set them away in whatever cool, dark place you have chosen to store them in while roots are being formed. Some use the cellar. This is a good place for them. Others dig a trench in the ground and sink the pots in it, drawing the soil about them after they are in place, and covering with boards or leaves, to exclude light. Others put them in a room away from fire heat, whose windows can be darkened. It does not much matter where they are placed, if they can be kept cool and dark. These are the points to aim at, at this stage of proceedings.

Most kinds should be left in the starting room at least a month, and some will require twice that length of time in which to fully develop roots. There is no definite period for this part of the work. They are to be left there until roots are formed, be the time long or short. Some will insist on making a growth of top shortly after being potted. If you find that

they are inclined to do this, it is as well to bring them up at once, as they will keep on growing after having begun, and they will surely be spoiled if left in the dark after top growth has started. The reason for this behavior on their part is this: They have been kept under conditions which excite premature development. Probably too much light or warmth has been given them. Most bulbs will grow to some extent when exposed to such conditions, if not potted, the same as Onions will, in the cellar. Such bulbs are weak, and seldom bloom. It is always advisable to procure fresh, strong bulbs each season. These only are to be depended on.

After the bulbs have been in the cellar or cold storage about a month, examine them, turn the ball of earth out of a pot and ascertain if the roots have reached the outside of it. If they have, it will be safe to bring the pots to the window, but do not bring them all at once, if you want a succession of flowers. By keeping some of them in low temperature the growth of the top can be retarded for some time. It is well to pot them at intervals, for by doing this, and leaving some of them in cold storage longer than others, we can manage to have flowers from bulbs during the greater part of winter.

Right here let us anticipate the question sure to be asked about the care required by bulbs after they have completed their winter flowering. We cannot advise carrying them over for another season. While it is true that once in a while a bulb will bloom a second time, after forcing, it is equally true that most of them will *not* do so. As a general thing, a bulb which has been forced is so exhausted by it that it is worthless afterward. It can never be *depended on*, therefore, to avoid disappointment, buy fresh, strong bulbs each season. These you *can* depend on.

On bringing your bulbs to the light, do not put them in a very warm room. A temperature of sixty degrees is much better for them than a higher one. In a low temperature, such as characterizes spring, the growth will be a healthy one, while a high one will force them too rapidly, and the development will be correspondingly weak. In a very warm room, many buds will blast. When in bloom the cooler you keep the plants, the longer their flowers will last.

Hyacinths often show buds shortly after the top starts. The flower spike will appear away down among the green leaves, and there it will seem determined to stay. If any flowers open while the buds are in this bunched-up condition they will not show to any advantage, and you will be greatly disappointed in your plant. As soon as you notice the tendency of a stalk to not develop properly, make a cone of thick brown paper, the size of the pot. Cut off about an inch and a half of the apex of it, and put it over the pot. The flower stalk will reach up toward the light, and in this way you can often succeed in coaxing it out of its sulkiness. This must be done as soon as you discover that the stalk is at a standstill. If you wait until the buds begin to open the use of the paper cover will be of no benefit.

Lilies

One of the favorite flowers for forcing is the Bermuda Lily, generally known as Easter Lily, and cataloged as *Lilium Harrisii* (Fig 45). Nothing can be finer than a large specimen of this superb plant, crowned with its great cluster of trumpet-shaped flowers of the purest white, of waxy texture, and most delightful fragrance. Such a plant is something to be proud of. As an ornament for the parlor it is exquisite, and for church use nothing equals it. A



FIG 45—THE BERMUDA LILY

good method to follow in growing this plant is this: Put three or four large and solid bulbs in each nine



FIG 40—ROMAN HYACINTH

or ten-inch pot, on top of about five inches of soil. Cover lightly, water, and set away to form roots. As

soon as the flower stalk starts bring them to the light, and as the stalk reaches up, fill in about it with soil, and continue to do this until the pot is full. The reason for planting the bulb low in the pot is, the roots, which furnish support for the stalk, are sent out *above* the bulb. If the bulbs are potted high, they find no soil for these roots to take hold of. The *candidum* and *longiflorum* Lilies are excellent for forcing, and should have the same treatment advised for *L. Harrisii*. The lover of beautiful flowers makes a great mistake if he fails to include some of these superb Lilies in his fall order.

Hyacinths

The Hyacinth will be found one of the most satisfactory of all bulbs for forcing. It comes in many beautiful colors, is very fragrant, and not one bulb in a hundred will fail to bloom if the treatment advised above is followed. The single sorts are preferable, as they have a more graceful spike of flowers than the double kinds, but the latter are deserving a place in all collections.

No one should fail to grow the Roman Hyacinths (Fig 46). These send up several flower stalks from the same bulb. Their single flowers are loosely arranged along the spike, and assert themselves most charmingly. These come in pink, white and blue. They are as fragrant as the Dutch sorts and preferable to them for cutting.

Tulips and Narcissus

Among the Tulips the single kinds are almost always selected, as being most certain to give satisfaction.

The Narcissus, or Daffodil (Fig 47), is one of the most charming of all flowers. No collection of winter



FIG 47—TYPES OF NARCISSUS

flowering bulbs can afford to be without them. They are simply magnificent. They are of the easiest culture. Their flowers remain a long time in perfection. Be sure to order some of all the varieties recommended as suitable for forcing.

Lily of the Valley

Many persons attempt to bring the Lily of the Valley (Fig 48) into bloom in the house, and fail with it because they treat it as they do the bulbs spoken of above. The pips or crowns should always be fresh ones, procured from reliable dealers who make sure of obtaining the best stock on the market. Keep them in a cold place until you are ready to force them, and then put them in pots containing sphagnum moss or sand, and place them, after watering them well, where they will have as steady a heat as possible, of seventy to seventy-five degrees. It is quite important that the moss or sand should never be allowed to get dry. Keep the plants in a semi-dark place until their stems are two or three inches high. Then remove to a lighter position in order to give the flowers a chance to develop. This treatment, it will be observed, is hardly such as can be given in the ordinary living room, therefore one ought not to depend wholly on this one plant for winter flowers. A greenhouse is the best place for it.

Get your pots and your potting soil ready for your bulbs as soon as you send off your order for them and see to their planting as soon as they arrive. Nothing injures a bulb more than to expose it to the air and light for some time before potting.

Freesia

The Freesia is a most delightful little flower, in form, color and fragrance, and it is unsurpassed for

cutting for use in small bouquets, and in dainty vases where quality counts for more than quantity. Put a



FIG 48—BUNCH OF LILY OF THE VALLEY

dozen bulbs in each six-inch pot. Unlike other bulbs this should not be placed in the dark but kept in the

light from time of potting. After flowering, they should be watered moderately until the foliage ripens. Then allow the soil in the pot to become quite dry, and set the plants away in some quiet place until the following August. Then shake out the old bulbs, and repot them for another season's work. This plant can be depended on for a second season's flowering.

For the sake of variety, one should include *Crocus*, *Jonquils*, *Alliums*, *Lachenalias*, and, in fact, nearly all bulbs which are found in the catalogs of the florists. They are all charming flowers, and a few of them add vastly to the pleasure which a collection of winter flowering bulbs can afford.

Below will be found a list of such kinds as are best adapted to the requirements of the amateur:

Allium Neapolitanum and *Hermetti grandiflorum*—Large clusters of starry white flowers. Fine for cutting (Fig 49).

Hyacinth—Romans for early flowering. Dutch for pots and glasses. Always get best named sorts.

Ixias—Mixed colors.

Jonquils—Single and double. *Campernelle*, large, and *Campernelle rugulosus*, a grand variety. All yellow and very fragrant. Specially desirable.

Lachenalia—Fine for hanging baskets. Charming flowers, of peculiar combinations of color. Foliage very pretty.

Lilium—*Harrisii*, *longiflorum* and *candidum*.

Lily of the Valley—German-grown pips most desirable and likely to give satisfaction.

Muscari—The "Grape Hyacinth." Feathery flowers in blue and white.

Narcissus—All good. The following are especially recommended: Large Trumpet varieties—*Trumpet major*, *Emperor*, *Empress*, *Henry Irving*, *Princeps*, *Golden Spur*, *Horsfieldii*, *Maximus* and *Ard*



FIG 49—THE NEAPOLITAN ALLIUM

Righ. Peerless or Star varieties—*Stella*, *Sir Watkin*, *Figaro*, *Leedsii*, *Cynosure* and *Barii conspicuus*. Double varieties—*Van Siew*, *Orange Phoenix*, *Sulphur Phoenix* and *Incomparable*. Polyanthus varieties—*Paper White grandiflora*, *Grand Soleil d'Or*, *White Pearl*, *Grand Monarque* and *Grand Primo*.

The Chinese Sacred Lily is a variety of Polyanthus Narcissus, of very easy culture. It is generally grown in bowls or vases of water, with a handful of small stones or pebbles about the bulb to hold it in place, and any of the Polyanthus varieties may be grown in the same way. The Poet's Narcissus, and the Hoop Petticoat varieties ought not to be overlooked. Both are very desirable.

Ovalis—Buttercup, of rich golden yellow, with large clusters of fine flowers borne on long stems above the foliage. A magnificent plant for a hanging basket. One of the finest of all plants, in fact, for this purpose. The rose and white varieties are also fine for hanging pots. Plant three or four bulbs in each pot.

Nerine sarniensis (Guernsey Lily)—A species closely related to Amaryllis, blooming freely in winter. Blossoms a brilliant crimson, seeming to be sprinkled with gold dust. Fine.

Tulip—Single. Due Van Thol sorts preferable.

Zephyranthes—White and pink.

Astilbe—While not a bulb, this plant may properly be mentioned here, as it is used extensively for winter flowering. Its flowers are white, of an airy, feathery character, and its foliage very pleasing. Strong clumps of roots are furnished, which should be potted and kept in a cool place until January. A beautiful plant for greenhouse use, but also adapted to cultivation in a cool window.

CHAPTER XXXVI

APPLIANCES FOR THE AMATEUR'S USE

All owners of collections of plants ought to provide themselves with such conveniences as will enable them to take the best possible care of them with the least trouble. There are many useful articles, which can be had for a very reasonable price, which will make work among plants easy and pleasant. They make it possible for us to take much better care of our

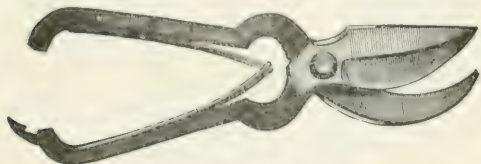


FIG 50—HAND PRUNING SHEARS

plants than we can if we fail to avail ourselves of the help of these conveniences.

Every amateur should own some pruning shears (Fig 50). These will be found useful in window garden, greenhouse or outdoor garden.

The thermometer ought to occupy a prominent place in every collection, and the owner of the greenhouse or window garden in which it is placed should be governed by its registration as far as possible.

Indestructible labels should be used where there are many plants, for it is a difficult matter to remember the names of many of them, and every person who grows plants wants to know just what they are.

Never depend on memory, or the little wooden labels which come with the plants you buy.

Trowels for transplanting and digging among plants will be needed in every home where flowers are grown.

A weeding hook will be found a great convenience in stirring the soil about your plants—much better than the stick with which the work is generally done. Some of the most approved styles are shown in Fig 51.



FIG 51—SERVICEABLE WEEDING IMPLEMENTS

Watering pots ought always to be at hand. The best are those made of heavy galvanized iron. The most useful ones are those having a long, slender spout, which will enable you to put the water just where it is needed without spilling or slopping it. Every watering pot ought to be fitted with a set of nozzles, which can be slipped on over the end of the spout, when it is necessary to spray plants, or the floor of the greenhouse.

Every amateur ought to have a portable spray pump (Fig 4). It will be found one of the most

useful things about the place. It will come into use daily. Use one for a week, and you will wonder how you ever got along without it. These are fitted with hose, to enable you to throw a stream. Each hose has a nozzle which can be adjusted in such a manner as to throw a stream, or a spray of any degree of fineness. The pumps will be found useful in many ways, outside the greenhouse, as for washing windows or buggies, putting out incipient fires, or applying insecticides to plants in the garden.

The only good substitute for these pumps is the brass syringe (Fig 2) made expressly for florists' use.



FIG 52—FOLDING PLANT STAND

This is another most useful article for showering plants, or the application of insecticides, etc. One will last a lifetime, and will be found a good investment. Use one of them and you will never thereafter depend on rubber sprinklers or hand atomizers.

Every owner of a collection of house plants ought also to own plant stands for them, either of wood or wire. These enable us to arrange our plants to the best advantage, both for their good, and for decorative effect. They will be found more convenient in every way than tables or shelves. Being provided

with casters, the wire stands allow us to move a large number of plants about without lifting a pot at a time, as is usually done. These stands are also valuable because they offer no obstruction to the light, and can be used in any position without shading the plants. A neat and convenient wooden plant stand is seen in Fig 52.

Swinging iron brackets will be found extremely satisfactory for use at the sides of the window. They enable us to make the window attractive, by growing on them plants of spreading or drooping habit whose beauty would be covered up to a great extent, and therefore wasted, if we were to give them a place among others, where they could not display their own individuality. These brackets can be swung toward the glass, or away from it, and a trial of them will readily convince anyone of their practical utility, as well as of the decorative possibilities which can be realized by their use.

Another excellent article is the plant stand by which single specimens can be elevated to any desired height. These will be found invaluable in decorating rooms with growing plants, for parties and other special occasions, for it is almost always necessary to give some plants an elevated position in order to produce the effects aimed at in our decorative scheme.

Another desirable article is the wood fiber saucer. These make it possible for us to use plants on the finest furniture, like the piano, the mantel or the sideboard, without running any risk of injury, as they are non-porous. A stand for large plants, made from the same material, is fitted with casters. This is also very useful, as it enables us to move heavy plants easily without lifting them.

The pot lifter is a handy little device which can readily be attached to large pots, and made to serve

as handles, with which these pots are never provided by the manufacturer.

For large plants, wooden tubs are furnished. These will be found very useful in the greenhouse or bay window, to accommodate plants which have outgrown the capacity of a pot of the ordinary size.

Bellows for the application of dry and liquid insecticides and fungicides should be provided. They will come in play many times during the season. The owners of these and other conveniences of a similar nature will find it so easy to give plants the attention they need by the use of them that they will have no excuse for neglecting to do so, as they will be almost sure to, if such conveniences are not at hand. They make it easy for us to reduce things to a system, and to do what is needed *when* it is needed, because we have the proper utensils to do it with easily and effectively.

Plant stakes of different sizes should be always on hand. Nothing so detracts from the pleasing appearance of a plant as the makeshift supports often provided. A neat painted stake costs but little.

A supply of good pots of different sizes ought to be kept on hand by the amateur. If we have pots convenient, we generally repot plants when they need it. If we have to "wait till we get some," the plant generally suffers from neglect to attend to it properly.

A supply of the various insecticides and fungicides needed by the amateur quite as much as by the professional florist, if he would keep his plants in good condition, ought always to be at hand, so that proper attention can be given to the enemies of plant life and health promptly and effectively. With this, as with repotting, we often wait until the injury done is so great that the plant cannot recover. If we have the material at hand to work with, this will not be likely

to be the case, as our regard for the welfare of our plants will lead us to come to their relief at once.

A supply of bone meal and plant food should constitute a portion of the amateur's outfit. It will be needed at all seasons. Aim to never be without a supply of it.

It is always a wise plan to keep these things by us, for, as has been said, we are likely to need them at any time. If we are without them, when needed, we are not in shape to take care of our plants as they ought to be taken care of. Whatever needs doing ought to be done as soon as the existence of that need is discovered, and in order to do this, we must anticipate, to a great extent, and provide ourselves with all necessary articles in advance. This is what the farmer, the housewife, and other men and women, do in their respective lines of business, and it is wisdom for the amateur, who grows flowers for pleasure, to pattern after them in this respect, as by so doing the work can be done in a businesslike way. A good plan to follow is this: Make pleasure as businesslike as possible and crowd all the pleasure you can into your business. And the only way in which you can do this is by "having things handy."

CHAPTER XXXVII

SMALL GREENHOUSES

I am glad to note that the lovers of flowers are evincing a growing interest in small buildings specially adapted to their culture. While it is true that fine plants can be grown in the sitting room, it is equally true that much finer ones can be grown in rooms adapted expressly to the wants of the plants. The reasons will be easily understood by those who give the matter a very little thought. In such a place temperature, moisture, light and shade, can be arranged to suit the plants, while in the living room it is impossible to govern these things to a nicety. A small greenhouse will accommodate as many plants as most persons who grow them for their own pleasure can find time to take care of, while in the sitting room or parlor the number grown must necessarily be limited. In a greenhouse a much greater variety can be grown, for plants will flourish there which would die if taken into the living room. Some of our finest plants, therefore, have to be neglected by the owner of a window garden because he knows that it would be useless to try to grow them under conditions which prevail there.

A great many persons labor under the impression that even a small greenhouse is very expensive. Such is not the case, however, if a plain house is built, and such a house will enable you to grow just as fine plants as the most elaborate structure. Material of ordinary quality can be used, and much of the work can be done by any person who is at all handy with tools.

But while it is true that a small house can be built for much less money than most persons imagine

who have given the matter little thought and no investigation, it is equally true that it cannot be built for a song. But one thing I am quite sure of: that many persons who often express a wish that they had a place expressly for plants spend more money foolishly in the course of a year than it would cost to build a very good greenhouse. Perhaps I ought not to say foolishly, but what I mean is, that money is expended unnecessarily. If a greenhouse were determined on, money enough might be saved to build it, while without this plan in view, the money required would doubtless be spent in ways from which no visible benefit would be seen at the end of the year. A little curtailing of expenses would do the work. If persons fond of flowers only knew the great amount of pleasure to be derived from such a house, well stocked with plants, they would be willing to economize in all ways to secure one. It will be found to be the pleasantest part of the home, and there is health in it, and a source of education for the children. I wish those who have window collections which bid fair to outgrow their present quarters would think about this matter and see if it is not possible to give the plants a room by themselves. Both plants and plant owners would appreciate it.

In building, it pays to build well. When we have to make provision for not only a possible but a probable thirty-degree-below-zero spell of weather, no ordinary, cheaply built wall will keep out the cold, and our greenhouses must be built with a view to doing this. I am sorry that I cannot tell those who ask me for estimates of cheap structures that a house which will answer all purposes can be built for twenty-five dollars, or fifty dollars, or one hundred dollars, fully equipped for work, for I would be very glad to see such a house attached to every home where there is

one who cares for flowers. I have received many letters during the past year from women who would like to start out in a small way in flower growing as a means of earning something, in which the writers say that they have a small sum of money which they might use in putting up a small house, and asking if I think it would pay them to do so. I have to tell them that I do not think it would. A house smaller than sixteen by twenty would not enable them to grow as many plants as they would be obliged to in order to make anything from them, and it would be impossible to build a house of that size in this section for less than two hundred dollars, let the builder economize to the greatest possible extent. In trying to put up a house for any smaller amount—that is, a house which would answer the purposes of such persons—it would be throwing money away. But when a person writes that he has two or three hundred dollars to invest in this enterprise, I can conscientiously advise him to go ahead, for I know from my own experience that a good house can be built for that: a house large enough to accommodate as many plants as most amateurs would care to grow, and which will, if properly built, afford ample protection against the rigors of our severest winters.

It is often advised that the walls of a greenhouse should be constructed by setting posts in the ground and boarding up on each side of them. If this is done, the cost will be greatly lessened, but I would not advise doing it, because the posts will rot in a few years, and then you will be obliged to rebuild, therefore in the end nothing is saved by building in this manner. I would advise having the greenhouse built just as substantially as the dwelling to which it is attached, for such a house will be good for years. The cheaper way is very questionable economy.

I have my houses built on walls of stone reaching down below frost-line, thus affording a solid and permanent foundation for them, and doing away with all danger of heaving from frost. On top of this wall sills are placed and two-by-fours set up, sixteen inches apart, along them. On both sides of these two-by-fours is a course of matched boarding. Over this tarred sheathing paper is tacked. Inside there is a row of matched ceiling boards, while on the outside there is another thickness of paper, and another thickness of matched boarding, then another thickness of paper, after which the wall is finished with what is called at the West "novelty siding"—a kind of matched clapboarding which gives a much better finish to the outside of buildings than the ordinary clapboard. Thus I obtain a wall in which there is an air space from which all cold wind is excluded. It pays to build well when you are at it, for the snugger and tighter you have your walls the less fuel you will have to use.

The side walls are four and a half feet high. They come up to the roof, no glass being needed on the sides of such a building. The wall at the south end is only three feet high; above that the end is filled in with sash. Get all the south sunshine you can. The roof is all glass, with two sections on each side which are hung with hinges at the top. These lift for ventilation. The sash in the end is double glazed, and these two thicknesses of glass enable me to leave plants standing with their leaves touching the inner thickness during our coldest winter weather, something that I could not do with safety if there were no double glazing. If thought preferable, there can be two sets of sash, and the outer one can be put on in fall and taken off in spring. The space between the two panes answers a double purpose:

It keeps the frost from accumulating on either pane, therefore the plants are not likely to be nipped if left touching the glass on the inside, and there is no frost to shut out the sunshine. Much of the sash in the end is hung on hinges so that it can be swung outward in summer, thus letting in plenty of fresh air from the end as well as roof.



FIG 53—THE AUTHOR'S GREENHOUSE

I have what I consider a model greenhouse (Fig 53). In no other way could I have expended the money and derived so much pleasure from it.

When my greenhouse was still "a castle in Spain," I began to study up the matter of heating it, were it ever to materialize. I wrote to practical florists for their opinions. Some advised steam heating. Others advised hot water heating. The majority seemed to be in favor of the latter system. After investigating the relative merits of both systems and visiting houses heated in both ways, I came to the conclusion that for small houses, such as the amateur would be likely to build, hot water heating is much preferable in several ways. Steam heating would doubtless be better for large houses, but in small ones it would not be as controllable, and certainly not as cheap, as hot water heating. Many dwellings are now heated by steam or hot water, and where this is done, it is an easy matter to extend the system to the greenhouse without much trouble and but little extra cost over the expense of the piping required. In such a case, you can heat your greenhouse very cheaply. If you have to buy a heating outfit expressly for it the cost will be considerably increased.

When my greenhouse was first built, I had a heater put in for heating it, while the dwelling part was warmed by coal stoves. Two years ago I decided to discard stoves from the dwelling and put in a hot water apparatus large enough to furnish heat for both dwelling and greenhouse. I find that it works perfectly. The greenhouse circulation is controlled to suit the weather by valves in the pipes taking the water from the heater to the greenhouse, so that a large amount of heat can be let on if desired, or all heat can be shut off, by simply opening or closing a valve. It is the same with that part of the circulation which extends to the dwelling. The quality of heat is much more satisfactory than that obtained from steam, being moister and milder. Steam heat is pretty sure to be

dry and intense in character. With the hot water system a slight fire can be kept, but as long as you have any fire at all the water will circulate in the pipes, while with steam you must keep the fire brisk enough to bring and keep the water to that degree in which it will give off steam to fill the pipes. It will be readily understood from this that the temperature can be regulated much more satisfactorily in a small house where hot water is used as a means of heating than it would be possible to do with steam.

The pipes by which the greenhouse is warmed run around the building on the sides and one end. There are four of them, all four inches in size. They are arranged with valves in such a manner that two pipes, one flow and one return, can be used for ordinary weather, while in colder weather the two others can be added. The principle of circulation may not be understood by the reader who has not looked into the matter, but if he cares to "post" himself, he can very easily do so by sending to the manufacturers of heating apparatus and asking for their catalogs, in which the system is fully explained. He can get estimates from them of the cost of fitting out his greenhouse with heating outfit.

In arranging the interior of a small greenhouse economy of space must be taken into consideration, and at the same time due regard must be given to an arrangement which will admit of showing off the plants most effectively. I would advise running a row of benches around two sides and the end, about three feet wide. In the center I would have a table or stand, with shelves arranged in such a manner that when filled with plants it would look like a pyramid of foliage and flowers. It would be a sort of plant stand rising from each side and both ends, to a central shelf which would be high enough to lift the plants

on it well toward the roof. In this way you can arrange your plants very effectively, and they will not be crowded, while they get the benefit received by being as near the glass as possible. This gives you a walk all around the house between side benches and tables. Against the end next the dwelling I have vines trained which completely cover the walls and run along the rafters.

The ventilating sections are controlled by rods and cranks, which enables anyone to lift or close them very easily, and the sash can be left at any place with the assurance that it will stay there till moved by the power which controls it. It cannot be lifted by a sudden gust of wind and flung down upon the roof, breaking glass and often sash bars, as ventilating sections often are when the old style of lifting rod is used.

I am often asked to give estimates of the actual cost of constructing such a house. This it is impossible to do because the cost of work and material varies so. With me lumber may be cheap, while with you it may be expensive. The only way to get at the probable cost of such a structure is to go to some practical carpenter and tell him what you want. He can figure out the amount of lumber, the quantity of sash, the cost of the work, and give you a very close idea of the total cost with the exception of the heating apparatus. The cost of that, as I have said, you can ascertain by correspondence with the manufacturers of it.

CHAPTER XXXVIII

GARDEN MAKING AND SEED SOWING

Do not be in too great a hurry to make your flower garden in spring, for nothing is gained by working in advance of the season. Wait till the water from melting snows and spring rains has had a chance to drain off before you spade up the beds.

When the ground is in such a condition that it will not stick to the spade, but cleave away from it and break apart easily, it will be safe to begin work. The first thing to do is to spade up the soil to the depth of at least a foot. A foot and a half is better. Choose a warm, sunshiny day for this work, and throw up the earth as lightly as possible, so that the air and sun can take effect on it. Leave it until it is in a condition to crumble easily before doing anything more with it. Then get some well rotted manure and mix with it thoroughly. If you work it over once or twice, you will have the soil fine, light and mellow, and that is just what you want it to be.

Do not sow flower seeds before you feel quite sure that warm weather has come to stay. The enthusiastic young florist, and some older ones, too, for that matter, always gets in a hurry to have his garden made when he sees "green things growing," and quite often he finds to his sorrow that "haste makes waste," for our first early warm days are only promises of what is to follow, and we ought not to be deceived by them into thinking that summer has really come. If you sow seed before the ground gets warm it will rot. If the seed starts, a "cold snap" may come along and kill your young and tender plants. Therefore, don't be in too great a hurry. Remember that a plant

started about the first of June often gets ahead of a plant started the middle of May. The May plant lacks the vitality and strength of the June plant, and falls behind in the race, although it had two weeks' start of the latter. The latter had the "staying qualities" which the premature growth of the former had robbed, or rather cheated, it of.

It may seem to be a very unimportant matter, but the fact is that the sowing of seed has a great deal to do with the successful culture of flowers in the garden. The soil must be warm, so that the seed intrusted to it will germinate readily. It must be light and fine, so that small seed will not be smothered under lumps and clods. A warm, fine soil and moisture are conducive to the successful germination of seeds, and if you have those which you know to be good, and sow them under the proper conditions, you may be reasonably sure of success.

After making the beds, and raking the surface over and over to thoroughly pulverize the soil, take a smooth board and press it down all over them to make the earth in which, or on which, you are to sow the seed, firm. If this is not done the drying winds and sunshine will soon extract the moisture from it, and delicate seeds may fail to grow because of a lack in that direction. It will not make the soil hard, but simply compact, and fine roots will find no difficulty in penetrating it readily.

I prefer to sow seed on the surface of a bed prepared in this way, and cover it by sifting on soil. It is easy to cover to the right depth by this method, while by the old one of drawing a stick along the beds and making little furrows into which the seed is dropped, one is very likely to get a portion of it covered so deeply that it will be unable to prick up through its covering. Fine seed requires but very

slight covering, and in no way can it be put on as evenly as by sifting.

After having scattered the seed on the bed, and sifted the soil over it, take your board and press lightly to firm the covering down, and make it able to retain moisture longer than it will if left in the condition it is in when just fallen from the sieve.

If the weather should prove to be dry, it may be necessary to sprinkle the beds once a day. Do this at night or early in the morning. Be sure not to let the soil get dry on the surface before your plants have come up. They must have moisture at this stage of their existence, or, rather, their attempt to begin an existence.

As soon as the plants appear, begin to pull up such weeds as will be sure to come along with them. A flowering plant and a weed are always at enmity with each other. It is a struggle between them from the beginning for the possession of the bed, and in ninety-nine cases out of one hundred the weed will get possession. There can be no compromise if you would have good flowers. Keep the weeds down or let them have their way. Most flowering plants are rather delicate at first, and it takes them some time to get strength enough to make a robust growth, while weeds go ahead vigorously from the start, and if you allow them to remain they will soon rob the others of the nourishment they ought to receive from the soil, and so spread their roots about that it will be difficult to pull them up later, without pulling up the plants you want to remain in the beds. Therefore, begin weeding your beds just as soon as you are able to tell the difference between weed and flower. And be sure to keep your beds clean all through the season. Nothing looks worse to the lover of flowers than a bed in which weeds and flowers grow together. In

order to keep the weeds down, you will be obliged to work at them late and early, for they grow so rapidly that they soon overcome the flowers if left to themselves. Neglect your beds for two weeks and you will be surprised to see what a start the weeds have got in them. They will tower above the flowering plants, and assert themselves everywhere with a see-what-I-can-do-if-you-give-me-a-chance air that challenges your admiration for their pluck and aggressiveness, notwithstanding your dislike for them.

Thin out your plants wherever they stand too thick, but do not throw any away until you know that no one would care for what you have no use for. It is a good plan to have a corner of the garden in which to set surplus plants, for cutting from.

Some persons like to start their seeds early in the season, in the house. In doing this care must be taken to give plenty of air, and to prevent the plants from becoming weak and spindling by reason of too much heat and moisture. Give just enough water to keep the soil moist, and as little artificial heat as possible. On sunny days put the boxes on the veranda, but bring in before the sun goes down and the air gets chilly. If you give plenty of air, sun, and not too much water, you can raise good, strong plants in this way, but if they are not strong and healthy at the time of transplanting to the garden beds, they will lag along and come out behind those raised from seed sown directly in the beds. I prefer to sow most annuals in the beds, because the labor is less, the results are more likely to be satisfactory, and as a general thing the plants grown in this way are quite as early in flowering as those which have been started in boxes or pots, even if they have had the proper kind of treatment. This being the case, I cannot see that one gains by starting plants in the house.

In making beds in which to grow flowering plants, I would never try to carry out elaborate designs. You want the flowers for their individual beauty, I take it, and so long as this is secured it matters little what the shape of the bed is. If you want beds in which to carry out schemes of color, or produce striking effects in outline or pattern work do not make use of *flowering* plants, but use such plants as the Coleus, Golden Pyrethrum, Centaurea, Achyranthes, Alternanthera and the like, in them. You can do this, with them, without sacrificing the beauty or dignity of flowers, for the effect aimed at will be supplied by the foliage of the plants used.

Have your beds so that you can work among them conveniently without being obliged to get into them. A long narrow bed is more easily taken care of than a wide or round one.

Do not attempt more than you can carry out. Always remember that a few flowers, well grown, are vastly more satisfactory than a great number of inferior ones. Aim to grow only good ones. Do not have many kinds if you have but little time or space at your disposal. Get those which you know to be good, rather than the "novelties" which *may* be worth growing, but which you don't *know* to be so. Buy seed of a reliable dealer always, if it costs more than that offered by dealers you know nothing of. In this, as in other things, the "best is the cheapest" in the end.

CHAPTER XXXIX

THE BEST ANNUALS

Below I give a list of the best annuals for general cultivation. It will not be understood, I trust, that because I have not named more of those described in the catalogs, these are the only ones worth growing. There are dozens of good kinds which I have not mentioned. I have selected these because I know the amateur will be sure of success with them if he gives them proper care, and because they are such kinds as will give the greatest amount of pleasure with the smallest amount of labor.

Sweet Pea—One of the most delightful of all flowers. No garden can afford to be without it.

Petunia—One of the "old standbys"; a great bloomer, and one of the all-the-season flowers, blooming from June to the coming of severe frosts. The colors are mostly shades of crimson and violet, very rich and brilliant. Some varieties are rose-colored, and some white, while others show combinations of all the colors of the family; one of the best plants we have for massing; most effective when grown in beds by itself.

Phlox—This is the grand flower for giving a solid color effect. Its flowers literally cover the beds with their brilliant hues. It comes in pink, crimson, violet, carmine and pure white. It is a wonderful bloomer, and will continue till very late in the season if it is kept from perfecting seed. In sowing seed of it, I would advise keeping each color by itself in the bed. If mixed, the effect is too bizarre to be pleasing. A fine effect is produced by massing the pink varieties and using the white kinds as a border.

Nasturtium—This is a very richly colored flower, mostly in shades of yellow and crimson. It is a great bloomer and a strong grower. Its foliage is a light green, which contrasts well with the bright, rich blossoms.

Calliopsis—This is the most useful flower for producing strong and rich effects. The colors range through yellow and maroon and are very fine. A bed of it is a most gorgeous sight when seen in sunshine. Fine for cutting.

Aster—This is one of the best of all annuals, and the very best for fall use, as it does not come into bloom until late in the season. It is quite as fine in form as the popular Chrysanthemum, which some varieties of it resemble so closely that they are often sold for the latter. It comes in shades of rose, crimson, violet, blue and pure white, and some varieties combine two or more of these colors in such a manner as to give a very striking flower. The catalogs give a long list of sorts, all of which are good. I prefer to buy packets of seeds in which each color is by itself, rather than the mixed ones, because it is easier to produce fine effects with masses of one color than it is where all colors are jumbled up together. This holds good with any flower.

Pansy—Everyone must have a bed of this magnificent flower; nothing equals it in richness of coloring or variety; royal purple, yellow, blue, black, white, copper—there is no end to the list of shades combined in the beautiful flowers which it gives us until snow comes. If you can have but one flower in your summer garden let it be the Pansy.

Balsam—A most excellent plant, bearing great quantities of rose-like flowers, in rich shades of red, purple, pink and white; no garden complete without it.

Ageratum—A fine lavender-blue flower; very useful for cutting; a profuse and constant bloomer.

Celosia—A most peculiar plant, with "combs" of brilliant crimson, scarlet and yellow; some varieties have a feathery effect from the peculiar divisions of the "comb."

Dianthus—The Chinese Pink; a most profuse bloomer, running through almost all colors; very fine.

Delphinium—Better known as Larkspur; charming plants for using in the background, on account of their tall habit.

Portulaca—A vegetable salamander, enjoying our hottest weather, and doing its best under a scorching sun; in almost all colors; a low grower; excellent for beds near the house or path.

Stock—More usually called Gillyflower; a most excellent flower, coming in various shades of red, blue, lilac, yellow and pure white; fragrant; fine for cutting; a late bloomer.

Zinnia—A strong-growing plant, the larger varieties well adapted for back rows; quite like a Dahlia in form, very double, and coming in a great variety of most brilliant colors.

Other good annuals are:

Scabiosa.	Godetia.
Salpiglossis.	Eschscholtzia.
Whitlavia.	Gaillardia.
Schizanthus.	Calendula.
Poppy.	Centaurea.
Nierembergia.	Cacalia.
Mirabilis.	Antirrhinum.
Lupine.	Nicotiana.
Myosotis.	Snapdragon.

Plants for edging:

Candytuft—A low-growing plant, bearing a pro-

fusion of white and purple flowers; very pretty as an edging for beds containing taller flowers.

Sweet Alyssum—Another good edging plant; a profuse bloomer, with white flowers; very sweet, and excellent for cutting.

Mignonette—Delightfully fragrant, and having very pretty, if not showy flowers; one of the most useful of all plants for bouquet use.

Lobelia—A charming little thing; blue and white; compact grower and great bloomer.

Flowering Vines

Morning Glory—One of the best plants we have for covering screens, and training over doors and windows. Exceedingly profuse in bloom and rich and varied in coloring.

Sweet Pea—Not a tall grower, but sufficiently so to be of use in covering low screens and fences.

Japan Hops—A very pretty vine of rapid growth, having dark and gray-green foliage variegated with white.

Flowering Bean—An old favorite which has been allowed to drop out of notice, but whose merits are bringing it again to notice. Rich scarlet flowers, as vivid as those of a Geranium.

Cypress—A very beautiful vine of delicate habit, with finely-cut foliage and bright scarlet flowers.

Gourds—Rank, strong-growing vines, useful for covering summer houses and outbuildings. Valuable chiefly because of their exceedingly rapid growth. An effective planting of annual vines is seen in Fig 54.

I want to give "special mention" to a few flowers named in the above lists, because of their great merit. One of these is the Aster. Because of its great floriferousness, and its habit of flowering after most other

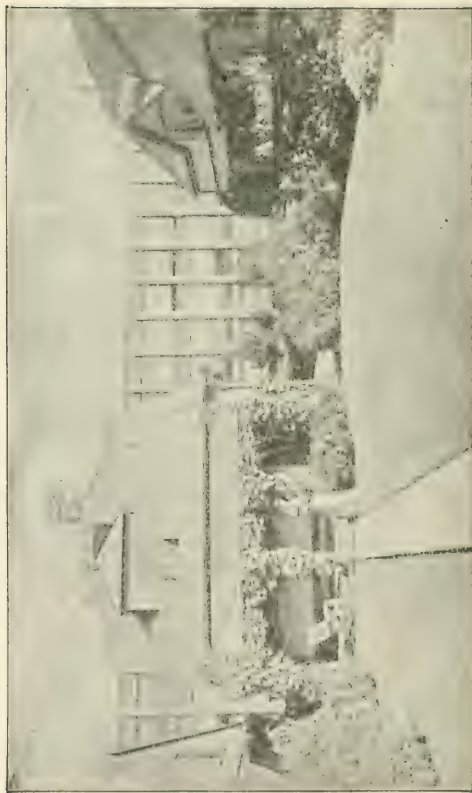


FIG 54—BACKYARD GARDEN IN A CITY LOT, DAYTON, OHIO

plants have passed their prime, it has long been a general favorite. But those who are familiar only with the popular varieties of five or six years ago have no idea of the perfection to which our florists have carried this plant in their improvement of old strains. The Branching Aster, the Comet and the Ostrich Feather sorts are as beautiful as any Chrysanthemum, and, in fact, they so closely resemble some varieties of that favorite flower that they are often mistaken for them. They are large in size, delicately, as well as brilliantly, beautiful in coloring, and have such long flower stalks that they are better adapted for cutting than any other annual except the Sweet Pea. They last for two weeks, when used in vases, if the water in which they stand is changed occasionally. The pale pinks and lavenders are especially lovely because of their delicate daintiness of color.

The Sweet Pea of to-day is another most lovely flower. Such exquisite combinations of color, such long-stalked blossoms, and such general all-around excellence, the old Sweet Pea never thought of laying claim to. To grow this plant well, it must be got into the ground very early in the season—in April, if possible. Do not wait for warm weather, but sow the seed as soon as the ground can be worked with spade and hoe. Make V-shaped trenches at least six inches deep, and scatter the seed thickly in them. Then cover lightly. When the plants have grown to be three inches high, draw in a little of the soil thrown out from the trench, and work it well about the plants, taking care to not injure them in the operation. By and by, when they have made a few more inches of growth, fill in with more soil, and keep on doing this, from time to time, until all the soil taken from the trench has been returned to it. In this way we get the roots

of the plant down deep in the ground, where they will be cool and moist during dry, hot weather. Allow no seed to form on your plants, if you want them to bloom during the entire season.

Another most excellent plant for late flowering is the Marguerite Carnation. Plants from seed sown in the garden will not come into bloom before October, but early-sown plants will begin to bloom in August. In size and richness of color, and delightful fragrance, this strain equals the greenhouse Carnation, and it is wonderfully floriferous. Plants can be potted in fall, and made to bloom throughout the winter in the window garden; where they will give better satisfaction than any of the greenhouse varieties.

The Poppy of the present is a most magnificent flower. It comes in a wide range of colors, and makes the garden gorgeous with its brilliance for many weeks during the summer months. Where masses of solid color are desired, the best annuals to use are Phlox Drummondii, in rose-color, white and pale yellow, Petunias in various colors, and Calliopsis. These for large beds, with Candytuft or Sweet Alyssum as edging.

What striking effects can be produced by the means of inexpensive annuals is shown in Fig 55; the principal plants being Cosmos, Castor Bean and Morning Glory.



FIG 55—ANNUALS IN A BACKYARD GARDEN

CHAPTER XL

BEDDING PLANTS AND PLANTS FOR TROPICAL EFFECT

Where striking and peculiar effects are desired it has become customary to make use of what florists term bedding plants in summer gardening. The term is used to designate such kinds of greenhouse plants as bloom well when planted out in beds, or have foliage whose colors take the place of flowers.

The Geranium stands at the head of the list. A garden without at least one bed of Geraniums is seldom seen nowadays. No other "bedder" gives such a brilliant show of color, or keeps up such constant bloom throughout the season. All you have to do to keep a Geranium blooming from June to frost, is to remove the flowers as they fade and prevent the formation of seed. The double kinds are most popular for bedding, as the flowers last longer and give a more solid color effect. The colors are so varied that you might have a dozen beds, each wholly unlike the other in that respect.

Tuberous Begonias are becoming very popular for bedding purposes. They are rich in color, and produce a fine effect.

The Bouvardia is good for use in the garden, and will be found especially desirable for cutting from. So will the Carnation.

The Calceolaria is much used in "ribbon" gardening, and in working out patterns in flowers.

Heliotrope is an excellent bedder, flowering very freely in a rich soil. This, like the Bouvardia, will be found very useful to cut from.

The Lantana is a profuse and constant bloomer, and is very popular.

The *Verbena* is one of the best of all bedders, being a very free and constant bloomer, and having intensely rich and beautiful colors.

Tea Roses deserve a place in every garden, and will be spoken of, at greater length, in another chapter.

Among foliage plants, the most popular is the *Coleus*. Very striking results can be brought about by its use. By planting it close together and keeping the plants cut in closely, solid effects of color can be obtained. The colors being so varied, and so distinct, it is much used in carpet bedding in which a set pattern is worked out.

The *Achyranthes* and *Alternanthera* are brilliant little plants which bear cutting in and trimming well, and therefore are extensively used in producing "pattern" effects.

The *Centaurea* has a soft gray leaf, which contrasts well with the *Coleus*, and is used in connection with it.

Golden *Feverfew* is also used extensively for bedding purposes.

All the plants named, except *Achyranthes* and *Alternanthera*, should be set one foot apart. These should be six inches apart.

Rapid growers must be trimmed frequently to keep them from getting the start of such kinds as are of slower growth, in order to produce satisfactory results in carpet bedding. You want a smooth, even surface, in which all the colors have a chance to equally display themselves.

In choosing "designs" do not make the mistake of selecting intricate or elaborate ones. Leave them to the professional gardener. Simple effects, depending largely on broad contrasts of color rather than on complexity of "pattern" for effectiveness, are much better adapted to the amateur's use.



FIG 56.—TROPICAL EFFECT FROM RICINUS AND OTHER ANNUALS

One of the best plants for producing a tropical effect on the lawn, or in the garden, is the Ricinus, or Castor oil plant (Fig 56). It can be grown from seed. It has immense palmate foliage, of a rich green, shaded with red, with a metallic luster when looked at in the sun. It grows to be eight or nine feet high, branching freely. It is excellent for the center of a circular bed.

Another plant with large and striking foliage is *Caladium esculentum*. It often has leaves two feet or more across and four in length when grown in very rich soil, each leaf being produced on a stalk sent up from the tuber. Fine for grouping about the Ricinus.

The Canna is a noble plant, with large rich foliage ranging through various shades of green and bronzy-red. Some varieties are tall growers, while others are quite dwarf. In addition to its fine foliage it bears very brilliant flowers in autumn, somewhat resembling the Gladiolus in shape and color.

The *Musa Ensete*, or Banana Plant, has very large leaves and is excellent for the center of a circular bed.

If one has a greenhouse, there will be many plants such as Palms, Pandanus or Screw Pine, Ficus and others of a similar habit, which can be put out of doors in summer with advantage to the plants. These can be used in helping to produce tropical effects.

The Striped Maize—a variegated variety of Corn—can be used with excellent results if several stalks are allowed to grow together. Its foliage is very much like the old "Ribbon Grass," though of course on a much larger scale. It should be planted in "hills," like the common Corn, one stalk not being sufficient to bring out the desired effect. As a plant to be used in the center of a group it is very desirable.

Fine effects are secured by the use of the Ribbon Grass mentioned in the preceding paragraph, in connection with Cannas and Coleus. Planted about a

group of Cannas, with dark scarlet Coleus in front of it, its green and white coloring comes out with charming effect.

The Eulalias (Fig 57), and other tall-growing grasses, ought to be used more extensively in garden-



FIG 57—THE EULALIA OR ZEBRA GRASS

ing, in combination with other plants. Their habit is so distinct and graceful that the use of them among plants of heavy foliage furnishes a contrast which heightens the beauty of both. The taller sorts are

extremely effective when used in large clumps, as the center of a prairie bed, surrounded by *Caladiums*, *Cannas* and plants of that character.

The various species of *Yucca*, or Adam's Needle, when planted in picturesque surroundings, produce



FIG 58—YUCCA FILAMENTOSA IN CENTRAL PARK, NEW YORK CITY

highly striking and pleasing effects. The species most generally used at the North is *Yucca filamentosa*. It is perfectly hardy in the Middle States and farther north. An effective style of planting is shown in Fig 58.

CHAPTER XLI

TEA ROSES FOR BEDS

No part of my garden affords me more pleasure than my bed of Tea Roses. I cut dozens of flowers from it nearly every day from June to the coming of cold weather, for buttonhole and corsage bouquets, and for use on the table, and in the parlor. One fine Rose and a bit of foliage is a bouquet in itself. If I could have but one bed of flowers it should be a bed of Tea Roses—and yet, I should want a bed of Pansies to supplement the Roses; therefore, a bed of each would be a necessity.

If you want to give a friend a buttonhole nosegay that shall be "just as pretty as it can be," you *must* have a bed of these Roses to draw from. A half-blown flower of Meteor, with its velvety, crimson petals, and a bud of Perle des Jardins, just showing its golden heart, with a leaf or two of green to set off the flowers—what a lovely harmony of rich color! Or, if your taste inclines you to more delicate colors, take a bud of Luciole, and a Catherine Mermet when its petals are just falling apart. Nothing can be lovelier, you think, till you have put a half open Perle des Jardins with a dark purple or azure-blue Pansy. When you have done that you are charmed with the manner in which the two colors harmonize and intensify each other, and you are sure there was never anything finer for a flower-lover to feast his eyes on. Put a tawny Safrano or Sunset bud with a purple Pansy and see what a royal combination of colors you have in the simple arrangement. Be sure and have a bed of Tea Roses, and make combinations to suit yourself.



FIG 59—TEA ROSE. CATHERINE MERMET

In order to make a success of your bed of Tea Roses—though perhaps I ought to say ever-bloomers, for probably your selection will include other varieties than the Tea—you must have a rich soil for them to grow in. When a branch has borne flowers, it must be cut back to some strong bud. This bud will, if your soil is rich enough to encourage vigorous growth, soon become a branch, and produce flowers. It is by constant cutting back that you secure new growth, if the soil is in a condition to help it along, and only by securing this steady production and development of new branches can you expect many flowers. All depends on that. If proper treatment is given you need not be without flowers—unless you cut them all—from June to October.

I give a list of some of the most desirable varieties for planting out in summer:

Catherine Mermet (Fig 59), flesh color, with large flowers and beautiful buds; very sweet; a good bloomer, and always a favorite.

Cornelia Cook, white; fine in flower, but most pleasing when buds are just opening; free.

Duchesse de Brabant, rosy carmine; very fine.

Douglas, velvety crimson; a lovely flower.

Etoile de Lyon, golden yellow flowers, produced with great freedom; a superior sort.

Hermosa, bright pink; very full and fragrant; a constant bloomer; one of the old standbys.

Marie Guillot, white; delicately tinged with cream; exquisite.

La France, hybrid tea; a most lovely flower, of pale, silvery rose; very large; full and deliciously fragrant; one of the most popular of all roses, and justly so.

Papa Gontier, large flower, with fine buds; carmine.

Safrano, yellow, shaded with apricot; an old rose, but none the worse for that.

American Beauty, the rose which created such a *furor* a few years ago; immense flower; beautiful in bud and when fully expanded; rich crimson.

Duchess of Edinburgh, intensely rich crimson; fine.

Madame Welche, yellow, shaded with copper; fine.

Niphetos, pure white; long, pointed buds; excellent for cutting before the flowers are open.

Perle des Jardins, one of the best; almost as desirable as Marechal Niel, which it resembles so closely that it is often sold for it by florists who do not hesitate to deceive a customer for the sake of making a sale; large; finely formed; a profuse bloomer and very sweet.

Meteor, velvety scarlet; very dark, and delightfully fragrant.

Sunset, tawny yellow; sweet; a fine rose, resembling Perle des Jardins, from which it is a sport, in form and habit.

Pierre Guillot, dazzling crimson; very fine; large flower; fragrant.

Vicomtesse de Wautier, rose, tinted with yellow; extra.

Jules Finger, rosy scarlet, shading to crimson; good bloomer.

Melville, silvery rose.

If I were to name all the desirable varieties I might fill several pages with the list. Look over the catalogs of the florists and you will see that the variety is almost endless. If you do not care to invest money enough to secure the newer varieties, tell the dealer to whom you give your patronage what you want the plants for, and he will make a selection

which will include some of the best kinds, and which will be sure to give you as good satisfaction as you would get from a selection of your own. Better, in most instances, for you would make your selection from the description in the catalog, while he would select from his knowledge of the merits of the flower.

By all means have a bed of these most sweet and lovely Roses. If the season happens to be a hot and dry one, mulch your rose bed with grass clippings from the lawn. Spread them evenly about the plants, to a depth of two or three inches, in such a manner as to cover the entire bed. By so doing, you prevent rapid evaporation and the roots of the plants are kept much cooler than when strong sunshine is allowed to beat down upon the surface of the bed. When the mulch begins to decay, remove it, and apply fresh clippings. About the middle of the season, give the soil a liberal dressing of fine bone meal, working it in well about the roots of the plants, or, if you can get it, use old cow manure. Whatever you apply, be sure it gets where the roots can make use of it.

CHAPTER XLII

THE DAHLIA

Of late years the old, very double Dahlia has lost something of the popularity it used to enjoy; not because it is not still considered a most desirable flower for the garden, but because it has failed so often to give satisfaction that amateurs have begun to consider it a difficult matter to grow it well. This failure is attributable more to our hot, dry seasons, several of which we have had in succession, than to any other cause, for this flower is fond of moisture at its roots, and must have it in order to do well, and a hot sun seems to depress it when the soil it is growing in is dry. A warm summer suits it well if we have plenty of wet weather along with the heat. Another cause of failure is the shortness of our northern season. If we would have many flowers from it we must give the plants an early start. If this is not done they will not come into bloom till late. They will be ready for the best work of the season about the time frost comes.

I aim to get my Dahlias well under way in April. I plant the tubers in good compost, in old boxes, and in a few days sprouts will start. I am careful to give them all the fresh air possible to prevent them from sending up weak and spindling stalks. I put them out in the sun, on warm days, and give only moderate amounts of water, aiming to secure a steady, healthy growth instead of a rapid one. It is not large plants that you want at planting-out time so much as strong and vigorous ones. A plant that has been forced to a too rapid growth will suffer from the change when

you come to put it in the open ground, because its vitality is low, while a strong, sturdy plant will not seem to mind the change at all.

The Dahlia is a very tender plant, and therefore easily affected by cold nights and chilly weather. On this account it ought not to be planted out until you are sure that there will be no frost at night, and that the days will be likely to remain warm. A continued low temperature often seems to injure it almost as much as a nipping frost. I do not dare put my plants out before the first of June.

This plant is a great eater. It likes food in large quantities, and it cannot be too rich. It is also a great drinker, and in order to secure the best results food and drink must go together in liberal quantities.

In preparing the garden for it, dig out the soil where it is to stand to the depth of a foot and a half, and put a liberal amount of rich manure in the bottom of the hole. Make the soil in which you set the plants light and mellow. Water well when you put them out. If the weather is suitable to their needs, they will go on growing as if nothing had happened. One tuber, with a strong stalk attached, is as good as a half dozen, if not better. It will make a large plant by midsummer.

As soon as the stalk begins to make rapid growth, set a stout stake by it, and keep the plant well tied up to prevent injury from storms and winds. Being extremely brittle, the stalks are easily broken.

When the plant begins to branch out, begin to give water at least three times a week. Save all the slops and wash water. Give each plant enough to soak the soil thoroughly about its roots. It will be thankful for anything you give it which contains any element of plant food, and make rapid development. Grow a plant in this way and note the difference between it



FIG 60—TYPES OF SINGLE DAHLIAS

and plants you have seen "taking their chances" in a dry season. Under this treatment it will begin to bloom in July, and you will get large crops of fine flowers in August and September. You get the start of the frost.

The Dahlia is divided into five classes. The "Show" Dahlia is the one most generally cultivated. The "Bedding" Dahlia is a dwarf variety, growing only about two feet high, but having flowers quite as large as those of the tall-growing kinds. The "Bouquet" Dahlia has small flowers, as perfect in form as the large ones. The Single Dahlia (Fig 60), which is very popular at present, being easier to succeed with than the double kinds, is very rich in color, much more graceful in appearance than the double sorts, which have a good deal of primness about them, and is very useful for cutting for vases and corsage bouquets. The fifth class is a comparatively new one, and has been evolved from the "Cactus" variety which enjoyed great popularity a few years ago. It is known as the Decorative Dahlia. Its flowers are of good size, borne well above the foliage, on long stems. On this account it is excellent for cut flower use. Most varieties are double or semi-double, but they are never prim and formal in the arrangement of their petals, like the old "Show Dahlia." Because of their more graceful appearance they are rapidly becoming general favorites. Another point in their favor is they come into bloom earlier than the older varieties and are therefore better adapted to garden use. For cutting, they are extremely popular, because of their rich coloring, graceful habit and lasting qualities. Where large flowers are desirable, they are unexcelled in the decoration of rooms, as their strong colors bring them out prominently against whatever is used as a background.

If sheets are thrown over the plants in fall, when frosty nights come, the season of blooming can be prolonged considerably, for they will go on flowering till killed. The cool weather of autumn gives us some very fine flowers from the Dahlia.

After a frost has turned the tops of the plants black cut them off, and on a sunny, warm day lift the roots, and let them lie in the sunshine till the earth will crumble from them readily. Cover at night, but expose to the effects of the sun again next day. Repeat this for two or three days, then store away in the cellar where they will keep cool and dry. They can be kept safely where a Potato winters well.

It is hardly worth while to give a list of desirable sorts in a book like this, as new ones are being added each year, and old ones are being dropped, as newcomers supplant them in merit. Consult the catalogs of the florists, and select to suit your taste, in regard to color and class. But—be sure to have at least half a dozen of them, if you want your garden beautiful after the annuals have completed their work for the season. Typical forms of double Dahlias are seen in Fig 61.

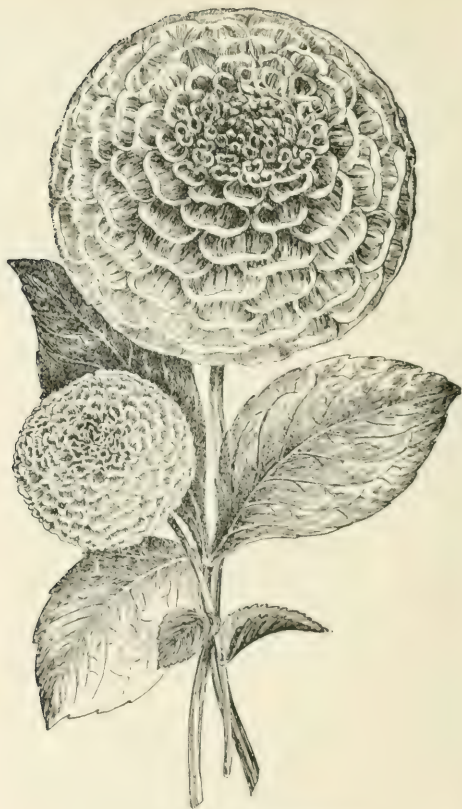


FIG 61—TYPES OF DOUBLE DAHLIAS

CHAPTER XLIII

THE TUBEROSE AND GLADIOLUS

The Tuberose is a lovely fall-blooming plant, but it is seldom seen growing in the garden, for the idea prevails that it cannot be grown there successfully, at least by the amateur. This is not true. It can easily be grown there if given proper culture.

It is a plant which requires a longer season than most other plants of its class. If planted out in June, or at the coming of really warm weather, it will not mature its flowers before late in September, and by that time we are pretty sure to have frosts which will kill it, as it is very tender. The proper thing to do, then, to bring it to perfection, is to give it an early start in spring, thus extending the season and giving it all the time it needs.

Get your bulbs as early as possible, and as soon as received plant them in small pots, in a light, sandy compost. Water well at planting, and keep in a warm place till they begin to grow. Then remove to a sunny window, and be careful about giving too much water. In June turn them out of their pots without disturbing the roots, and plant in a rich, light, sandy soil having a warm, sunny exposure. Treated in this manner Tuberose will come into bloom early in September, if your bulbs are strong and sound. As a bulb blooms but once, be sure that you get good, blooming bulbs. Of course you can't tell about this by the looks of the bulb, but if you buy of a reliable dealer—and you should patronize no other—you can safely trust to his honesty to send you what you want.

Before planting your Tuberose take a sharp knife and cut off the mass of old, dried roots at the base



FIG 62—THE PEARL TUBEROSE

of the bulb. Cut off close to the solid portions. They will start a great deal sooner if you do this, and be much surer to make fine plants. If this is not done quite often the old roots decay and communicate disease to the bulb. Most persons are familiar with this flower from having seen it in cut flower work from the florists, who raise it extensively. Its blossoms are thick and waxy in texture, ivory white in color, and exquisitely fragrant. The flowers are double, and are produced in spikes about a foot in length, on stalks about three feet tall. The best variety is the Pearl, a spike of which is seen in Fig 62.

The Gladiolus

This is the best of all the summer-flowering bulbs, all things considered. It is to the amateur's garden what the Geranium is to his window. It is a flower anybody can grow, and it is lovely enough to satisfy the most exacting. You can have it in the most delicate colors if your taste runs in that direction, and you can have it in colors of extreme brilliancy if such colors are your preference. It is something you can depend on to do well if you give it half a chance. But the better you care for it the better it will do, and it pays to give it liberal treatment.

Of late much attention has been given this flower by the florists, and great improvement has resulted. The size of the flower has been increased, its colors intensified, and new markings and combinations of colors of wonderful beauty have rewarded the skillful hybridizer. It deserves a place in every collection.

It likes a soil that is light, mellow and rich. Any soil in which Corn will grow well suits it. And it likes to be planted in the open ground about the time Corn is planted. That is early enough. If you have bulbs enough to warrant you in doing so, hold back

some for planting about two weeks later. By making successive plantings you can prolong the season for a month or more, thus securing fully two months' display of beauty from this charming flower.

I prefer to plant the bulbs in clumps or masses. In this way a much better effect is secured than by planting singly. Try it once and you will never care to plant bulbs alone, or in rows again.

Something should be given to support the flower stalks when they appear. When planted in clumps, half a dozen bulbs to a clump, three stakes can be set to which a hoop of wire can be fastened. By passing strings back and forth among the stakes, and fastening them to the wire, all the support needed will be given, and the wire and strings used will not be so obtrusive as to be unsightly. This method of support is much preferable to tying the stalks to sticks, as it allows them to have plenty of freedom, thus preventing that stiff effect which always results from tying up each stalk.

One might suppose, from the great popularity of this flower, that it would be expensive. Such is not the case, however. It can be bought very cheaply. Seedling collections are offered at very low prices, and from them you will obtain many flowers quite as fine as any of the named varieties. Some of the latter cost three, four and five dollars each. This amount of money invested in seedlings will get bulbs enough to fill a large bed. If you want certain colors you will have to buy the named bulbs in order to be sure of getting what you want, but for general purposes the cheaper bulbs are quite as good.

There seems to be no limit to the range and variety of colors. Rose, scarlet, crimson, lilac, violet, cherry, yellow, white—and all these so combined in such a manner as to give you a flower rivaling an Orchid in

superb coloring and delicacy of texture. For there is nothing coarse about the Gladiolus. It has all the delicacy of the Lily combined with the magnificence of color peculiar to the most brilliant and showy tropical plants.

Nothing is finer for cutting for vases. The flowers last for days, and buds develop into blossoms after being cut.

After frost comes take up the bulbs and lay them in the sun till the earth is dry enough to be shaken from them. Then cut off the flower stalk, leaving about six inches of it attached to the bulb. If cut closer the bulb may rot before it becomes dry enough to go into winter quarters. In December put in the cellar if it is a dry one, if not, store in some room free from frost and moisture.

This bulb increases rapidly. If you invest a dollar or two in bulbs this season you will have quite a stock of them in fall, when you come to dig them, and from these, planted next spring, you will obtain all you care to use, and very likely more. If so, it will afford you a great deal of pleasure, doubtless, to share them with your flower loving friends who may not be so fortunate as you are. Fig 63 shows flower spikes of some of the best types.



FIG 63—TYPES OF IMPROVED GLADIOLUS

CHAPTER XLIV

HARDY BORDER PLANTS

Very many persons are fond of flowers who have but little time to devote to their culture. It is a fact that cannot be denied that the cultivation of annuals requires a good deal of hard labor, and that much time must be devoted to the garden if you would have it what it ought to be. These persons would do well to devote their attention to hardy border plants. Once established, these plants are good for years, and they will require less attention each year than any other class of flowers. In spring they should be dug about, to keep the grass from crowding them out. Manure should be worked in about them, and about every other season their roots should be divided. This constitutes pretty much all the care they require. While they do not bloom all through the season as most annuals do, they give a most profuse crop in summer, and many of them are extremely beautiful.

The following are among the best:

Aquilegia—Known as Columbine in some localities; in others as Honeysuckle; very beautiful in form and habit, and equally so in color; some varieties are blue, others yellow, scarlet and white, while some combine these colors in beautiful contrast; some are single, others double; an early bloomer, and very desirable.

Campanula—This is the well-known and ever-popular Canterbury Bell; color blue and white; fine.

Carnation—The garden variety of this most beautiful flower is quite equal to the popular greenhouse class; it has large, perfect flowers of most beautiful coloring, and is delightfully fragrant; it is almost as

great a favorite as the Rose; no garden ought to be without several plants of it; it comes in all shades of red and rose, while many varieties have stripes and flakes of these colors on white or yellow ground.

Delphinium—The Perennial Larkspur; one of our best border plants. It grows to a height of four or five feet, therefore is well adapted to back rows, and for growing along fences. *D. formosum* is a most brilliant blue, intense in tone and very effective. Other varieties are scarlet, white and pink. When grown in masses it produces a magnificent show of color. You cannot afford to be without it.

Digitalis—Better known as Foxglove; a stately plant, producing racemes of flowers two feet in length, thimble-shaped, and prettily spotted; purple and white.

Hollyhock—If we have a better border plant than this, for general use, I would like to know what it is. It combines stateliness of growth, beauty of color and form, profusion of bloom, and ease of culture to an extent seldom found in one plant. For large groups in prominent places, for backgrounds, and for combination with other plants of large growth, whose colors require something in the way of contrast, it is unexcelled. A group of the lemon yellow varieties and the blue *Delphiniums* produces a most striking effect. In the newer strains we have scarlet, maroon, pure white, rose, yellow, purple and almost black flowers, as double as Cabbage Roses, with a delicacy of texture quite unknown among the old single varieties. The newer kinds are not such tall growers as the old ones, but reach a height of four to five feet. A row of them, planted in the background of lower-growing plants, is always sure to be admired. Be sure—be very sure—to have at least a dozen or more plants of the *Hollyhock*. The more the better, if you have room for them. A



FIG 64—THE ALLEGHENY HOLLYHOCK

new strain of Hollyhock has recently been introduced. It is known as the Allegheny (Fig 64), and has semi-double flowers, with crimped or ruffled petals. It is rapidly becoming popular and deserves special mention.

Perennial Pea—This plant has large clusters of rose-colored flowers, of the true Pea shape; a climber, it dies to the ground each season, but starts early in spring and makes a strong growth; very useful where a climbing plant is required.

Iris—This is one of the most beautiful plants on the list; its colors are exceedingly rich, but delicate, and the texture of its petals puts you in mind of frost; a strong-growing plant, very profuse in bloom. Plant some of the pale yellow varieties alongside the lovely blue sorts and note what an exquisite effect is secured. There are many species and varieties. The most showy ones are the Japanese, seen in Fig 65.

Anemone—This is a late fall-bloomer, therefore very desirable; there are two varieties, and both should be grown; *alba*, pure white, and *rubra*, red; very fine.

Dicentra—Sometimes called Bleeding Heart; a charming and graceful plant; it has fine, fern-like foliage, above which it throws its long, arching stems laden with pendulous pink and white flowers; very desirable.

Paeony—Old favorites everywhere, because of their great crops of large and beautifully colored flowers. Scatter them about in the border; early bloomers; many varieties are delightfully fragrant. The flower and foliage of the Fine leaved Paeony are shown in Fig 66.

Rudbeckia ("Golden Glow")—One of the most meritorious plants of recent introduction. Hardy as a Lilac. Grows well in any soil. Blooms in August and September, with such profusion that clumps of it, seen



FIG 65—TYPES OF JAPANESE IRIS

from a little distance, appear a solid mass of the richest golden yellow. The flowers are about the size of those of the Decorative Dahlia, and they resemble them so much in form and general appearance that they are sometimes mistaken for them. This *Rudbeckia* deserves a place in every garden. No other hardy plant equals it in brilliance of color. It is excellent for cutting, as the flowers are borne on long, slender stems. They last for a long time after being cut. They equal the new Asters in this respect.



FIG 66—FINE-LEAVED PAEONY

Perennial Phlox—This is, among border plants, what the *Geranium* is among window plants, or the *Lilac* among shrubs. It is of the easiest possible culture. Anyone can grow it, in almost any kind of soil, except pure sand. It produces enormous clusters of flowers, in crimson, carmine, scarlet, rose, purple, violet, mauve, magenta and pure white. Some varieties have stripes of contrasting color. Others an eye of white

on a colored ground, or one of color on a white ground. Planted in groups, with due regard to color harmony, most magnificent effects can be secured by it. The lilacs, mauves and magentas should never be used in combination with the scarlets or crimsons, as they do not harmonize in the least. Planted together, they produce a discordant effect, but when used apart and in combination with the white varieties, all are lovely.

Coreopsis lanceolata—A low-growing plant with bright yellow flowers. Very hardy and free flowering, and an all-the-season bloomer. Excellent for front rows in the border.

If Hollyhocks, or other border plants are attacked with what is generally termed "rust," because of the rusty, brown appearance of the foliage, apply Bordeaux mixture, promptly and liberally. Unless something is done to counteract the effect of this disease—for it *is* a disease of bacterial nature—the plants attacked by it will soon be severely injured, or killed outright, and it will spread to others until the whole garden is involved.

CHAPTER XLV

SPRING-FLOWERING BULBS

Nothing in the garden gives more satisfaction than a bed of bulbs, because they give us flowers long before we can expect any from other plants, with the exception of some of the very early shrubs. The Snowdrop and Crocus bloom almost as soon as the snow is gone, followed closely by the Hyacinth and later by the Narcissus and Tulip. Bulbs enough to fill quite a bed will not cost much. The money invested in them is slight, but the pleasure afforded by them is not to be reckoned in dollars and cents.

The time to plant these bulbs is in the fall, for, if put out early in the season, or at any time between the last of September and middle of November, they have a chance to become established before severe winter weather sets in, and are ready for the season's work when spring comes. From the last of September to the middle of October is probably a better time for doing this work than later, because the ground is generally warmer and drier then than afterward, and can be worked more thoroughly; but any time in the fall will do if the bulbs are kept in good condition, and the ground is not frozen.

In making beds for bulbs two things are of the greatest importance. These are:

First—rich soil.

Second—good drainage.

If the soil is heavy or compact make it light by stirring it well before you plant your bulbs in it. Spade it up and mix manure with it thoroughly. The finer and mellowier it is the better flowers you will have. If the soil is clay, add loam and sand, then manure.

The best fertilizer for bulbs is that which can be obtained from old yards where cow manure has been thrown out and suffered to lie till it has become rotten. It will be black and friable, and can be thoroughly incorporated with the soil. If you can get nothing but fresh manure you would do well to go without any, for I know of no bulb which will do well where it is used. It induces unhealthiness and decay.

Bulbs will not do well in a soil in which water is allowed to stand. Depend on that, and act accordingly. If your bed is low, and water is retained about the roots in spring, you may get one tolerably good crop of flowers, but the following year you will get few flowers, if any, and these will be inferior, and the plants will have an unhealthy appearance. Examination will show you that the bulbs are diseased. Therefore drain your beds well if they have not good drainage naturally. This is easily done by digging out the soil to the depth of a foot or two and filling in with several inches of stone, old cans, bricks, anything and everything which will hold up the soil when you return that which has been thrown out, and keep it from settling down into a hard, compact mass in the bottom of the bed. Putting in this material will raise the bed to a height which will enable it to shed most of the water from melting snows and early rains, and what percolates through the soil will pass off among the crevices below, and thus away from the roots of the bulbs.

The best bulbs for bedding, because the hardiest, are Tulips, Hyacinths, Crocuses and Snowdrops.

I would not advise mixing different kinds in the same bed. A bed for each kind, by itself, will be found most satisfactory.

There are several varieties of the Tulip. Some are very early, others a month later: some are single,

others double; some are low growers, while others reach a height of twelve to sixteen inches. You can find out all you want to know about the habits of the plants by reading the catalogs carefully. You will also find in them valuable hints which it is unnecessary to give here about making selections and planting. This flower has an almost unlimited variety of colors, and these colors are of the richest, ranging from pure white and palest yellow to dark crimson, brilliant scarlet, maroon, royal purple and rose, with combinations of several of these colors in some varieties of flaked flowers. The Parrot Tulips are exceedingly gay, having petals of brilliant coloring, feathered and fringed, with light colors on a dark ground, or *vice versa*. A Tulip bed is a most gorgeous sight when in full bloom, and happy is the possessor of one. The principal types of Tulips are shown in Fig 67.

The Hyacinths come in more delicate colors, but they are very fine and rich. You can suit your taste as to double or single flowers. I prefer the single sorts, because the flowers are not so crowded on the stalk, therefore they have a more graceful appearance. But you will want some of both. This flower possesses a delightful fragrance.

The Narcissus is a most charming flower and no garden can afford to be without it. Some varieties have small flowers, others large. The small-flowered section make up in quantity what they lack in size. All are exquisitely beautiful. The colors are rich golden yellow, a pale sulphur yellow, cream and pure white. Some are single, some double. A group of them lights up the garden in spring like a burst of sunshine. One of the finest spring blooming bulbs we have. The flowers are deliciously fragrant, and excellent for cutting, keeping a long time in the house.

The Scilla is a charming little blue flower, bloom-

ing with the Snowdrops, when the ground is not yet free from snow. These, with the Crocus, should be



FIG 67—TYPES OF TULIPS

planted in clumps along the paths, and scattered about without any attempt at "arrangement." By planting

them in a bed of formal design you spoil the effect of them. You want them where you will "happen upon them," and not in a bed.

Be sure to dot the border, or row of herbaceous plants, with bulbs. They will brighten it charmingly before the other plants begin to grow much.

It is not necessary to take up your bulbs each season, as some seem to think. I prefer to let them remain undisturbed for two or three years. Then I lift them after the foliage has ripened, and divide them, storing them away until fall, when they are reset in new beds. The beds where bulbs grow can be utilized for annuals without making it necessary to disturb the bulbs, which will have completed their flowering before it is time to put out the annuals. The soil can be stirred with a rake, taking care not to let the rake teeth penetrate far enough to come in contact with the bulbs.

The bulb bed should be covered in fall with litter from the barnyard, or leaves, to the depth of eight inches or a foot. Remove in spring before the bulbs begin to grow. If left on too long, they will send up their stalks through it, and being tender, they will be broken when you come to take it from the bed.

CHAPTER XLVI

HARDY ROSES

The ideal garden has many Roses in it. Roses here and there, and everywhere. There cannot be too many of them. Indeed, to the lover of this most lovely of all flowers there can never be enough, though perhaps the Californian may have a surfeit of them. A lady wrote me last summer about a *Marechal Niel* which clambered up to the eaves of a two-story house, from which she had often cut a bushel basket full of flowers without being able to note the loss of one. Think of that, and long for Paradise in southern California, oh lover of this lovely Rose which we often fail to get a dozen flowers from in our greenhouses in the course of a whole season!

Roses must be given a very rich soil if you want them to do their best, and we ought to be satisfied with nothing less. They will bloom well, comparatively speaking, in an ordinary soil, but you never know what they are capable of doing until you give them a bed in which plenty of old, strong manure is worked. Treat a bush which has been giving you flowers of ordinary size and color to such a fertilizer and you will be surprised to note the difference in growth, foliage, size and richness of color of the flowers.

The Rose likes a somewhat heavy soil. It prefers a clayey loam to a sandy loam. Its roots are strong, and it seems to want a soil in which it itself can intrench firmly. If the location selected for your Rose bed is not naturally well drained, see that it is made so. Dig out the soil to the depth of two feet,

and put in a lot of such rubbish as accumulates about all houses to act as drainage material. It may not sound very poetical, but I would advise utilizing old boots and shoes, bones, etc., in this way. They not only answer the direct purpose for which you use them, but they will decay and furnish an element of plant food which the Rose will make good use of. Then get plenty of old, black, friable cow manure and mix it well with the soil thrown out of the bed. You can scarcely give too much. Old chip dirt is excellent, also. In such a soil you may expect your Roses to do great things. And they will not disappoint you if you give them proper attention in other respects, which you will do, of course, if you are as much of a lover of this flower as you ought to be.

Among the older varieties of Rose, the best are the Provence, the Damask and the Cabbage—all popular, and all good, and well worth a place in the most aristocratic garden alongside the new candidates for favor. In addition to these, I would advise the following as being especially desirable among the hardy, June blooming kinds:

Harrison's Yellow, a Rose of exceedingly rich color, not very double, but bearing enormous quantities of flowers, and as hardy as the Lilac; leaves generally with nine leaflets.

The Persian Yellow is of a much deeper hue than the preceding, and more double, nearly full. It is of feeble growth, and is best when grown on the stock of the Dog Rose or the Manetti. The foliage is small, leaves with seven leaflets, with Sweetbrier scent.

George the Fourth, a rich crimson-scarlet flower, very double and delightfully fragrant; a free bloomer, and good grower; one of the best. It is hard to find it among the rose growers, but it is well worth seeking for.

Madame Plantier, pure white, blooming in clusters; a rather small flower, but very beautiful; excellent for cemetery use.

The popular class of Roses to-day is the Hybrid Perpetual. The name is somewhat misleading. None of this class can truly be called perpetual bloomers. But they can be made to give us flowers through a good share of the season, with proper treatment, but there will be but one profuse crop of them. This will come in June and July. If, after having given this crop, the shoots are cut back well, and the soil is made very rich to encourage a fresh and vigorous growth, new branches will be put forth, and these will almost always produce some good flowers until quite late in the season. Unless this treatment is given you will get very few blossoms from them after July.

Among the most desirable kinds of this class, I would name the following:

Alfred Colomb, red, shading into carmine; large and fine.

Baron de Bonstetten, dark crimson, with velvety texture of petal; a magnificent variety.

Baronne Prevost, large flower, of clear, bright pink.

Baroness Rothschild, rich rose color with a luster like satin; cup-shaped; exquisite.

Fisher Holmes, crimson; very double.

Gen Jacqueminot, intense crimson, shading to scarlet; velvety in texture; superb in all ways; one of the most popular of all Roses, and well deserving its popularity.

Madame Victor Verdier, carmine; full, large, globular flower.

Marie Baumann, vermillion shaded with dark scarlet; extra fine.

Paul Neyron, one of the largest of all Roses: rich, satiny rose color.

Perfection des Blanches, one of the most prolific and late bloomers; white, very sweet.

Prince Camille de Rohan, velvety crimson shaded with maroon; large, double and sweet.

Vick's Caprice, a soft, satiny pink, distinctly striped and dashed with white and carmine; especially beautiful in the partly opened bud.

Victor Verdier, bright rose.

Of course every collection must include some of the Moss Rose section. The following varieties are among the best:

Blanche Moreau, white.

Henri Martin, red.

Luxembourg, scarlet.

Princess Adelaide, pink.

Raphael, white tinged with pink.

Salet, rosy red.

Then, too, you will want some of the climbers. These are good:

Baltimore Belle, blush white.

Gem of the Prairies, bright crimson.

Queen of the Prairies, dark rose color; one of the best of the climbing sorts.

The Ramblers are recent additions to the great Rose family, but they have proved to be so useful that we cannot afford to overlook them. While not as fine as most other varieties, when the individual flower is considered, their wonderful profusion of bloom, rampant growth, and adaptability for grouping, or using as screens or coverings for fences and outbuildings make them necessities in every up-to-date garden. A fine specimen of Crimson Rambler is shown in Fig 68.

The Hybrid Perpetuals will have to be laid down

and covered in fall. The climbers ought also to have protection. The other varieties will stand our northern winters quite well without protection, but they will

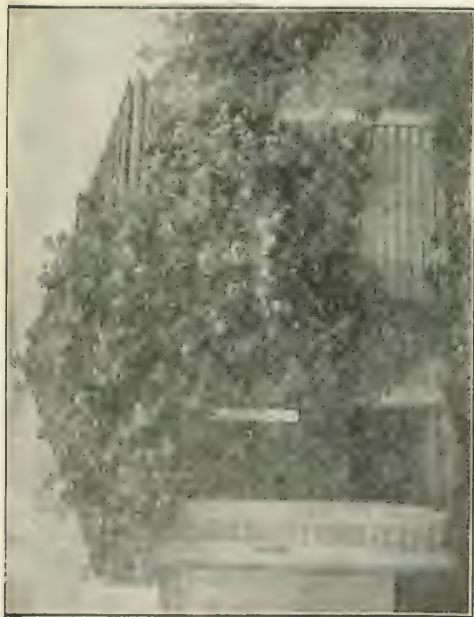


FIG 68—CRIMSUN RAMBLER ROSE

do so much better if it is given that I would always advise giving it. In preparing Roses for winter, I heap earth about the base of the plant, and over this

I bend the stalks until they touch the ground. If bent squarely over the stiff stalks often snap off, or split, but the heap of earth makes it easy to bend them in a curve, which prevents accidents of this sort. Lay sods on the branches to hold them down and cover with leaves or litter to the depth of five or six inches. In spring, when the plants are uncovered and lifted, cut back well.

CHAPTER XLVII

VINES

Nothing gives a more graceful finish to the porch or veranda than the vine you train up its posts and along its eaves. No house is what it ought to be in the sense of the beautiful, without some vine trained about its windows and up its walls to break up all stiffness of outline and soften the effect of broad surfaces of painted wood.

One of the best vines we have is, I am glad to say, a native plant. I am always proud to read of the popularity of the *Ampelopsis* abroad. It is a rapid grower, has beautiful foliage at all times, and especially so in autumn, when it takes on its rich crimson and scarlet and maroon colors, and is so hardy that the severest weather fails to injure it in the least. It is to America what the Ivy is to England. It is quite as beautiful, in a different way. It clings to smooth surfaces by means of little discs at the end of its tendrils.

Ampelopsis Veitchii comes to us from Japan. It has smaller foliage than our native species and is not so rampant a grower. It forms a dense mass of foliage. It is a charming plant, but really not so desirable as the American species.

Akebia quinata is a Japanese vine with very pretty foliage, and brownish flowers. It is a rapid grower.

Aristolochia, or Dutchman's Pipe, is a very rapid grower, perfectly hardy, with immense leaves, and flowers of peculiar shape, somewhat resembling the old-fashioned German pipe. Hence its common name.

The *Bignonia* is one of our most desirable climbing plants. It has beautiful foliage of a rich, bright,

glossy green. Its flowers are tubular in form, borne in clusters, and of a brilliant orange-scarlet.

The Honeysuckle is a prime favorite, as it well deserves to be. It is beautiful in foliage and flower, hardy, a most profuse bloomer, and something that everybody can grow with very little trouble. The following varieties are all excellent:

Halleana, pure white flowers, changing to yellow; fragrant.

Scarlet Trumpet, constant bloomer; flowers scarlet outside, with yellow lining.

Japan Golden-veined, small leaves, covered with a network of bright yellow; flowers white and fragrant.

Celastrus scandens. This is our Bittersweet, another native of great merit. It has bright green foliage produced in great profusion. Its flowers are inconspicuous, but they are succeeded by clusters of berries. These berries are inclosed in orange capsules, which burst and turn back, exposing the red fruit within. The berries are quite as ornamental as flowers. A clean, strong growing plant, very useful for training over old trees.

Perhaps the most popular of all climbing plants just at present is the Clematis. It is really a magnificent plant. It grows with wonderful rapidity. It blooms with the greatest profusion. It is rich in color. It is hardy. Having all these good qualities it ought to be popular.

The following are among the most desirable varieties:

C. paniculata grandiflora—A comparatively new variety, but one of the most meritorious members of the family. Flowers small, but borne in such profusion, all over the plant, that it has the appearance of being covered with snow. Color, white. Fragrant. Foliage, rich dark green. Especially valuable

because of its late-flowering habit. Blooms until cold weather. One of our very best vines, if not *the* best.

Jackmanii, flowers of violet-blue, five or six inches across; a charming plant for training on screens, trellises and lattice.

Lanuginosa candida, very similar to *Jackmanii* in all but color; being white, it can be used to fine advantage with that variety, the contrast in the color of their flowers being very fine.

Countess Lovelace, double, lilac.

Duchess of Edinburgh, double white; free bloomer and fragrant.

Venus Victrix, pale lavender; double; very fine.

Coccinea, scarlet; quite unlike the other varieties named, the flower being somewhat bell-shaped.

Virginiana—This is a native, known in some parts of the country as Virgin's Bower; in other sections as Traveler's Joy. It is exquisitely beautiful. Its flowers are produced in wonderful profusion. They are small, but are borne in large, branching clusters, pure white in color, and fringe-like in appearance. A plant, when in bloom, seems to be covered with newly-fallen snowflakes. One of the best plants in the whole list for growing about verandas and porches.

The Clematis dies down to within a foot or two of the ground each season, but sends up new stalks in spring, which make an exceedingly rapid growth.

The Wistaria is one of our most satisfactory climbing plants after it becomes well established. During the first four or five years of its existence I find that it must be laid down and covered during winter at the North. If this is not done, a large proportion of the season's growth will be killed. After a few years it seems to acquire hardiness, and

can be left on the trellis, or whatever it is trained to. It is a lovely plant when well grown. It will clamber to the eaves of a two-story house, and in early summer its branches will be laden with long racemes of beautiful flowers of purple-blue and white.

CHAPTER XLVIII

LILIES

Every garden should have at least a half dozen choice Lilies. Next to the Rose, this flower stands pre-eminent for beauty among the garden's favorites, and no collection can afford to be without it.

Most kinds adapted to general culture can easily be grown by the amateur, provided he can give them a well drained location, and a deep, mellow soil. If it contains considerable sand, all the better, for a sandy soil means a soil not unduly retentive of moisture in spring. Nothing injures the Lily more than stagnant water about its roots, except the use of fresh manure. To apply this to Lilies, under the impression that it will benefit them, is one of the greatest mistakes that can be made by the amateur. If it comes in contact with them, it almost invariably brings on a diseased condition which speedily results in death. The only manure safe to use among Lilies is very old, thoroughly rotten cow manure—so old and decayed that it crumbles readily under the application of the hoe. This, mixed with a loamy soil from which the water from melting snows and spring rains drains rapidly, makes an ideal fertilizer for this class of plants.

Lilies should be planted from eight to ten inches below the soil, and they should be covered in fall with litter, or leaves, or some other similar material, to the depth of at least a foot. Unless this is done, frost will penetrate the earth about them, and, by its expansive action, so wrench the plants from their places that their roots will be injured or broken off altogether. When this is done, failure is to be looked for. But

such injury can be prevented by deep covering, combined with deep planting. If you were to ask me the two things of greatest importance in Lily-growing, I would answer, protection from the action of frost in winter, and thorough drainage.

In planting Lilies, I would advise putting sand immediately about each bulb. This is not absolutely necessary, but it is advisable in most soils, as sand is almost wholly devoid of vegetable matter, for which most garden varieties seem to have little liking. An old gardener once told me that it was an easy matter to kill a Lily by planting it in muck or leaf mold. I think he overestimated the danger, but I have always seen the finest Lilies growing in soils free from decaying vegetation.

The following kinds are among the best for the amateur:

Auratum, the "Gold-Banded Lily." One of the most magnificent ornaments of the garden, when well grown. Its flowers are often eight inches across. They are pure white, as to ground color, with red spots on each thick, waxen petal, and a gold band running from tip to calyx. (Fig 69.)

Brownii. A superb species, with large, trumpet-shaped flowers, pure white inside, and purple without.

Excelsum. Apricot yellow. A stately plant. Fine for grouping.

Rubrum, red.

Album, pure white.

Speciosum, extremely beautiful. There are many varieties, the most distinct of which are *album*, *rubrum* and *roseum*.

Candidum, an old species, but quite as desirable as any of the newer sorts. White, and delightfully fragrant.

Tigrinum, or "Tiger Lily," another old favorite,



FIG 69—THE GOLDEN-BANDED LILY

orange-yellow, thickly spotted with brown. Very hardy and floriferous.

Umbellatum, tawny yellow, with upright flowers. Long, Amaryllis-like foliage. Fine for masses. Will grow anywhere. One of the sorts that stand all kinds of neglect and abuse, and look cheerful under it.

Some of our native species are well worth a place in the garden, foremost among which *Lilium superbum*, our common Swamp Lily. It grows from six to eight feet high on an average, with four to twelve orange-red flowers on each stalk. It is a splendid plant to grow among shrubbery.

CHAPTER XLIX

SHRUBS, AND HOW TO PLANT THEM

The owner of a yard, no matter how small it may be, ought to do something toward developing its possibilities. There may be room for only a shrub or two, but this is no reason why the place should be neglected. Plant what you have room for. Do what you can to make the place attractive, and the home spirit will do its share in beautifying the spot. The more attention we give the home the more we find in it to love and to work for.

Every place ought to have at least a few shrubs, because to a great extent, especially in our villages and cities, they must take the place of trees. They have a dignity which the smaller, hardy herbaceous plant does not possess.

As a general thing they grow into symmetrical shape without much pruning. Many of them have the merit of blooming quite early in the season. All that I shall make mention of in this article are hardy, and all of them can be grown with reasonable certainty of success by anyone who will follow the directions I shall give in planting and caring for them. One strong argument in favor of shrubs is, they are good for years after becoming well established.

In planting the lawn to shrubs, let me caution you to not make the mistake of putting them too close together. They are small when first put out, therefore they make but little show, and we get the impression that a good many are needed, and we set them a few feet apart—possibly ten, but generally less—and the result is that in two or three years we have a mass

of bushes in which all individuality is lost, and when shrubs "run together" in this way, their dignity is destroyed. To guard against this almost universal mistake, we must take a look ahead. Think what the proportions of the shrub will be when it has fully developed, and plant accordingly, always keeping in mind the fact that there ought to be ample space between. If you haven't room for more than one, have one only. One good one, planted in such a manner as to display itself effectively, will afford a great deal more satisfaction than several inferior ones, such as you may make sure of having if you plant more than you have room for.

The next thing to do after getting your shrubs and deciding where they shall be planted, is to get the ground in proper shape for their reception. Some take a spade and dig a hole a foot square and about the same in depth, crowd the roots of the shrub into it, shovel in clods of the soil thrown out, tramp them down, and call the job done. This is all wrong, and the man who does it will have, as he deserves to, a miserable apology for a shrub.

In the first place, make the hole large enough to accommodate the roots without cramping. In the second place, work the soil over until there isn't a clod or lump in it, mixing in, as you do this, some old, well-rotted manure. Shrubs have to eat, like other plants, and you must feed them well if you want them to do well. Then set the shrub in the hole dug to receive it, spreading its roots out evenly and naturally. Scatter soil over them, and then, by lifting the plant gently and shaking it a little, work this soil down among the roots. After filling in enough to cover all the roots, apply at least a pailful of water. This will settle the soil firmly about the roots. Then heap the rest of the soil about the base of the shrub.

There are so many excellent shrubs that it is a difficult matter to select the best. Among the ironclad sorts I know of nothing superior to the Lilac. It requires very little care, grows rapidly, blooms with great freedom early in the season, and is healthy and long lived. There are several double varieties on the market which deserve especial attention. If in doubt as to what to plant, decide on a Lilac and you will not regret it.

The Japan Quince is a fine shrub of low, compact habit, with glossy foliage, and intensely rich scarlet flowers, produced very early in the season. It makes an excellent hedge.

The Weigelas are favorites everywhere. They develop into large bushes, and every branch will be literally loaded down in June and July with flowers in various shades of red, rose and white.

One of the most charming shrubs I know of is the Double Flowering Plum, cataloged as *Prunus triloba*. It makes a bush about four feet in height and five or six feet across, with many graceful branches which in May and June are perfect wreaths of bloom, like those of the old Flowering Almond. The flowers of this Plum are pink and white, quite double, and like miniature Roses in shape.

Of course, you will want some Roses. The Ramblers are proving hardy enough to stand our northern winters, if laid down in fall and covered well. They are beautiful things when full of flowers. To secure the best effect from them, plant several in a group.

For late blooming, *Hydrangea paniculata grandiflora* is perhaps our best shrub. This, like the Rambler Roses, is most effective when grouped. (Fig 70.)

The Flowering Currant is an excellent shrub. It is always graceful without pruning. It blooms with wonderful profusion early in the season, having

thousands of soft yellow, very fragrant flowers. In fall, its foliage turns to gold and crimson, and again the bush is as attractive as in spring.

The *Daphne Cneorum* is a very charming little shrub, suitable for a location near the path or house, as it never grows tall enough to get in the way. It bears clusters of bright pink flowers, which are de-



FIG 70—GROUP OF THE HARDY HYDRANGEA

lightfully fragrant. It flowers at intervals all through the season. Well deserving a place in all gardens.

The Flowering Almond has lost some of its old popularity, but none of its old merits. It is a charming little shrub, with its slender branches so thickly set with pink and white flowers that they look like wreaths.

The *Spireas* are most beautiful shrubs, bearing small flowers in great abundance. Like the Flowering Almond their slender branches seem wreaths of bloom.

The *Syringa* grows to a height of eight or ten feet, branches freely, and becomes a most attractive shrub for a prominent location. It blooms very profusely, having white flowers with a fragrance like that of the Orange. On this account it is popularly known as Mock Orange.

The *Deutzias* are lovely plants: *D. crenata flore pleno* is a double variety, with clusters of pure white drooping flowers; *D. gracilis* is a more slender grower, with graceful delicate white flowers produced so freely as to almost cover the branches.

The Flowering Sumach is one of our most useful shrubs where a strong, tall grower is required. It has finely divided foliage, and its flowers of creamy white have such an airy, graceful look about them that they give one the impression of plumes; excellent for cutting, as the flowers combine charmingly with all other colors.

The *Halesia*, or Silver Bell, is an old favorite; it is a tall, strong-growing shrub, having pendulous, bell-shaped flowers of pure white.

The Purple-leaved Berberry is an excellent shrub for use among light colored plants, on account of its rich, dark foliage. If this is planted beside of, or near, the golden-leaved *Weigelia* the effect is rich and striking. If you can give it a place where it will have some such flower as the yellow Hollyhock, or Goldenrod, for a background, its beautiful color will be thrown out with very pleasing effect.

We have many good native shrubs. Some of the *Alders* are lovely ornaments of the garden when they are planted in front of evergreens. The contrast between their brilliant red berries and the dark green of *Spruce* or *Arbor Vitae* is very fine, and gives one a thrill of pleasure when seen through falling snow, or when the ground is white.

The Elders (Fig 71), with their great clusters of lace-like, milk-white flowers, are quite as fine as many foreign plants. Some of the Dogwoods are worth a place in any garden. Our Thorns are almost equal to the English Hawthorn, but unfortunately they are not easy to transplant. The wild Crab Apple is a most lovely shrub, or small tree, when covered with its bright rose colored flowers of musky sweetness.



FIG 71—THE AMERICAN ELDER

and would soon be extremely popular if advertised as having come from Japan, with a long name attached to it, and a good, big price.

And then, the wild Roses, what could be sweeter? Sometimes I think them more lovely, in many ways, than the great double ones. They have such a delicacy of color, such a delightful fragrance, and grow in such a graceful way, that they ought to be grown wherever any of the Rose family is cultivated.

Perhaps a small tree may be desired. If so, select one of the Japanese Maples with finely-cut foliage, or a cut-leaved Birch. Both are beautiful at all stages of growth.

Be sure to go over your shrubs each spring, and thin them out well, if you want them to make strong, vigorous growth. Some shrubs, like the Lilac, form their buds the season previous to blooming. These must not be pruned until after flowering, for this would destroy a large share of this season's crop of flowers. But such shrubs as bear flowers on growth of the present season can be pruned in spring. Remove all dead or injured branches promptly, and do not hesitate to cut back any branch when you see that it is trying to get the start of others. It is an easy matter to make a shrub assume a good, symmetrical shape if proper care is given when it is needed. This is when it is growing. If neglected then, it will not be so easy a matter to bring it into satisfactory shape.

Be sure to keep the grass away from the roots of your shrubs if you want them to remain in vigorous, healthy condition. If this aggressive little plant is allowed to have free range it will soon choke out delicate shrubs, and even the hardiest, like the Lilac, will suffer from its encroachments.

CHAPTER L

ROCKERIES

When properly made, on a lawn or in a yard of considerable size, a rockery can easily become a leading feature of the place. It will attract because of its wildness and contrast with other portions of the grounds. But unless properly made, there will be no sense of wildness about it. What is fondly imagined by its constructor to pass for wildness will really be very tame, and the whole thing will most likely be a burlesque on one of nature's rockeries. I am frequently amused to see the specimens of rockwork some grounds display. They are not like anything under the sun but—themselves!

I would never advise anyone to attempt a rockery unless there are quite extensive grounds about the house, for seclusion seems necessary to the complete carrying out of the idea which the term rockery suggests. It is a nook apart from frequented places, or, at least, it should be, to have the charm which naturally accompanies such bits of nature, with something of the wild freedom of wood and field about it. If possible there should be an old tree near it; any way, some large shrubs which have attained almost the dignity of a tree. Without tree or shrub, don't attempt having a rockery. But with these accessories it will be possible for you to make something that will afford a great deal of pleasure, provided, as I have said, you have room enough to give a sense of seclusion to the place.

In constructing a rockery do not go to work with the intention of "laying one up" as a mason would a

wall. There should be no precise or systematic arrangement. Heap the stones together as carefully as possible. The larger the stones are the better. Fill between them with earth from the woods or the pasture. You will find many kinds of wild plants springing up in this soil, after a little, and these plants are the very ones necessary to give the place a natural look. I have never been pleased with any rockery filled with anything but wild plants, because there is an inconsistency in the idea of a rockery over which plants from the garden and greenhouse grow. The rockery, in the true sense of the term, suggests perfect freedom from everything conventional and cultivated. Anything not in accordance with this idea will interfere with the successful carrying out of the plan.

Of course the idea is to imitate nature. But the truth is, it is the hardest thing in the world to do to imitate nature successfully. She never has a plan. She works from instinct. Most of us lack her instinct of beauty, and her ability to create it without rules or patterns, and what we do in imitation of her is quite likely to bear as little resemblance to her work as the first drawings of a child resemble the work of a practiced hand. If it is necessary for the picture on the slate to be labeled "This is a horse," or "a cow," as the fancy of the amateur artist prompts, it would be equally necessary in most instances to label most attempts at rockery building so that no mistake need be made by the beholder, for one is about as true to nature as the other.

In attempting to imitate nature in anything, it is necessary, first of all, if you would do good work, to take lessons of her. Do you want your rockery to remind you of some wild nook that you have seen in the woods? Then go to that spot, and sit down and study the heap of rocks and the plants growing among

them well. Observe how the rocks are piled together. There is no suggestion of the stonemason. There is no getting at any precise, formal rule to follow. All is disorder, in one sense of the word, and yet everything is in that perfect order which grows out of the eternal fitness of things. Here a vine has taken root, and its beauty softens the rugged outline of the rocks across and over which it clammers, half concealing them. A Fern has made itself a home in a crevice and flourishes as you can never expect its fellow to in *your* rockery. All kinds of wild things creep and clamber over the gray stones—grass, weed, moss—all in perfect harmony with the place, and not one suggesting the cultivated garden.

The most pleasing rockery I have ever seen is one that was not "built" at all. Still, it was made, and yet it was an accident. A man was hired to draw some great rocks of which to construct it. He drew them, and unloaded them in a heap near the place where the rockery was to be. When the owner came to begin work, he was impressed with the idea that the careless, haphazard way in which the stones were piled up was vastly more like nature's way of doing such business than anything likely to result from a more formal effort, and he had the good sense to leave the heap precisely as it was. This rockery is a pleasing one because there is an entire absence of design or plan about it. If he had rearranged the rocks of which it is composed he would doubtless have spoiled it.

If you can locate a rockery where it will seem as if springing from a bank, or as being the continuation of one, your chance of success with it will be much better than it will if you have to build it on a level foundation. Rocks, as a general thing, seem to have tumbled from somewhere. They don't heap themselves together on a flat surface. Choose a place, then, if possible, where

there is a bit of knoll or hill to give some color of consistency to the idea that possibly they might have fallen from this elevation, though, of course, you will not be successful enough in your attempt to make anyone think for a moment that they ever did so.

Such vines as the *Ampelopsis* or Virginia Creeper are excellent for planting among rocks. So is the wild Grape, or the Blackberry. Let them run riot. Never attempt to train them. The more of a tangle they make the more attractive your rockery will be. At the base of the rocks—which cannot be too large—plant Ferns of different varieties. Shrubs from the woods can be planted near. Let the path to it be a round-about one. If you can arrange it so that one comes upon it suddenly, and not suspecting what the path he is following leads to, so much the better. The surprise of finding a pretty imitation of a bit of wild life there will add much to the pleasure it will give.

CHAPTER LI

AFTER THOUGHTS

The *Helianthus multiflorus*. This is a new plant, comparatively, and one that I am quite delighted with. It is a variety of Sunflower, but a much finer one than anything of the kind we have had heretofore. It sends up several stalks from thick, half-tuberous roots, and in August and September these are well laden with flowers of a very rich golden yellow. These flowers are about as large over as the top of a teacup, and are quite double. They light up the garden wonderfully, and on this account, more than that of their individual beauty. I consider them very useful. There is no color so effective as yellow in bringing out and toning up the beauty of other colors. It puts life into them. One plant of this *Helianthus* will make a good sized garden gay, which without it would seem filled with a monotony of dull colors. It seems concentrated sunshine. It is very effective for the decoration of rooms in autumn, especially when used with vines of the Virginia Creeper after that plant has begun to take on its crimson and maroon colors. It appears to be quite hardy and to stand our winters well at the North. However, should it in any locality be found tender, the roots can be taken up and stored in the cellar.

Hyacinthus candicans (*Galtonia candicans*). This plant, popularly known as Summer Hyacinth, is a member of the Lily family. It blooms in August. It grows to a height of three or four feet, and bears a large number of beautiful, drooping, bell-shaped white flowers. If several bulbs are planted in the center of a

bed of *Gladiolus* the effect is very fine, as the Summer Hyacinth throws its flowers well above the others. It is hardy, and is an excellent plant for cemetery use. In order to secure a good effect several bulbs must be planted in a clump.

I intended to speak of the *Salvia* as a summer bloomer. It is one of our most effective bedders. It can be made to do excellent work as the center of a group. Its long spikes of brilliant flowers make a splendid show among Cannas and other plants with rich green foliage. When used with the *Helianthus* or with yellow Hollyhocks, or as a background for white Perennial Phlox, it is very fine. Yellow and white brings out the intense richness of its flowers vividly. It is excellent for cutting. Plant it near a clump of Goldenrod and note the effect. It is difficult to tell which is the more brilliant.

And that reminds me that I wanted to speak a good word for this beautiful flower. I have several clumps of it growing in my yard, and it is greatly admired by all who see it. It is quite amusing to have an old farmer stop and lean over the fence to ask me what "that yellow posy is." As if he had not seen it growing, all his lifetime, in the pastures and fence corners! But it is hardly to be wondered at that he thinks it something else than the despised "yellow weed," for under good treatment it improves wonderfully. It becomes a great, round, compact mass of flower stalks three feet high, completely covered with golden plumes. It is well worth a place in every garden. Few flowers give such a rich and solid color effect as the Goldenrod.

Another fine native plant is the Aster of the fence corners and the pastures. Its delicate color ought to make it popular. Like the Goldenrod, it improves wonderfully when well cared for, and in September it will be covered with purple and blue and lavender flowers, which are very pleasing in the garden among flowers of brighter color, but especially so in vases. It is one of the most charming plants we have for the decoration of rooms.

We have few finer flowers in the list of border plants than the herbaceous Spireas. *S. palmata alba* has flowers of the purest white, with very large, rich foliage. *S. rosea* has pink flowers. The individual blossoms are small, but there is a multitude of them in each cluster, which is borne on the top of a stalk four feet high. These clusters give the effect of plumes, so light and feathery are they, as one sees them nodding in the breeze. Be sure to have both varieties, and to plant them together. One alone is good, the two kinds much better, one being the complement of the other in all ways.

Pansies sown in spring give good flowers late in the season, but never very fine ones before October, with me, and though the plants seem to come through the winter in good condition, I fail to get many flowers from them the next season. I am convinced that the best plants are secured by late sowings. They ought not to bloom at all the first season. They should be strong, vigorous plants in the fall, which have not exhausted or weakened themselves by flowering. If well protected they will come out in spring in the proper condition to begin flowering early, and will produce fine flowers through the greater part of the season. I would not try to take them through a second

winter. You see that plants grown from early sowing divide their blooming between the last of the present year and the first of the next one. I would aim to prevent this by not sowing seed before July. It is very much the same with Hollyhocks, and other plants of that class, which have been sown early in the season. They don't get along quite far enough to bloom the first year, yet they pass that stage which ought to take them to the close of the first season's growth. I would not advise sowing seed of any perennials before July or August if I wanted them to do their best next season.

When plants are received from the florist do not remove the paper or moss in which the roots are packed, at once, and leave the soil exposed until you get ready to pot them, but sprinkle them thoroughly, just as you take them from the box. Don't be afraid of giving too much water. Then let them stand for an hour or two. They will freshen up wonderfully in that time, and the soil will not be likely to crumble away from the roots when you remove the wrapping.

By all means have a "cut-and-come-again" corner. A place for all the odds and ends of the garden and the plants which overflow the window. You will find such a place one of the most delightful spots in or about the garden. It will give you as much pleasure to visit it as it does to make an informal call on a friend with whom you are not expected to stand on ceremony. There everything is delightfully free and easy—no stiff, prim arrangements of beds, no suggestion of "company manners," or being on dress parade. When you want a nosegay for your friend, or some flowers for the house, there is where you will go to look for them first, and there is where you will always be most likely to

find them. You won't be afraid of spoiling the looks of anything by cutting freely from this corner.

I am often written to by parties who are mystified by their Rose bushes. A letter before me says that the writer has a very thrifty Hybrid Perpetual. It bloomed the first year it was planted. The next spring the old top was dead, but it sent up strong shoots from the roots, and has continued to do so every year since, but not a blossom has it given on these branches. Why? It was a grafted plant. The first year you had Roses because the graft was alive. That winter the grafted portion died, and the next spring shoots were sent up from the stock on which the Hybrid Perpetual bud had been grafted. This often happens, and the owners fail to understand why it is. I would never get grafted Roses. Buy those which are on *their own roots*.

Do you want a low fence that shall not offend the eye, but be a "thing of beauty"? Then get some wire netting, with large meshes, and stretch it smoothly on small, neat posts. Then plant Virginia Creeper by it, and let this plant take entire possession of it. It will be beautiful at all seasons, and especially so in fall when the foliage takes on its rich colors. This netting makes an excellent trellis for training Clematis on. It is also excellent for piazza use, as it does not keep out the sun when not covered by vines, is not obstructive in appearance, and lasts for a lifetime if taken care of. Its meshes afford a much better support than any trellis I have ever tried.

Floral awnings can be made very easily, and they will be found to be not only quite as effective as the striped cloth in general use, but vastly more pleasing to the eye. "The boys" can make the frames for them.

These should be of lath, nailed in squares, with strips crossing from corner to corner, to stiffen them, as well as to form a support for the vines trained over them. Fasten one side of the frame to the top of the door or window frame, and support it by running strips from each side of the door or window frame to the front corners. Let these strips for supports be long enough to throw the front of the framework of lath out well from the window, but not long enough to make it anywhere near level when put in place. When covered with flowering vines the effect will be very satisfactory. These homemade awnings can be used in combination with window boxes, at second story windows. Care must be taken to give the framework slant enough to properly shade the window.

I frequently get complaints from parties who have been victimized by the "tree peddler." They tell me about buying a Rose which was to bear "seven colors on the same bush," or perhaps a "blue Rose," or a "Vanilla Plant" which was wonderfully fragrant when first bought, but soon lost its sweetness. The only way to prevent being imposed on by these unprincipled persons is to refuse to buy of them. Send your orders to some dealer in whom you have confidence. Then you won't get cheated.

I have been asked to give a sort of unfailing recipe for a "rockery." I can give one which will be satisfactory, always: Don't have any. The fact is, we can't make rockeries that are not monstrosities. Nature has the patent on them. You may pile up a lot of stone in the yard or on the lawn and *call* it a rockery. But that doesn't make it so in the true sense. It is nothing more or less than a heap of stones, and a burlesque on nature's work. The only way in which you will ever be

able to get any satisfaction out of it, if you have good taste, is by covering it up as quickly as possible. Even if it were possible for us to construct a rockery that would imitate nature's work well, such a construction would be out of place in a small yard. A rockery—one of nature's, at least—suggests wildness and seclusion, and you don't expect to find these in a front yard not fifty feet square.

I do really hope that no reader of this book has ever had the "Gipsy Kettle" craze. If he or she has, I trust they have recovered from it long ago, and that the kettle has been consigned to the oblivion of the back yard, where it always belonged. The sight of a dinner pot painted a fiery red, and dangling from three sticks, with a poor, down-hearted little plant in it, has often made me feel like committing trespass. No one ever saw a plant growing well in one of these abominations, and it is not at all to be wondered at that the plant wanted to die, and *did* die.

Layering as a method of propagating some kinds of plants which do not root readily from cuttings is to be recommended. Take a branch and bend it down to the ground, giving it a *sharp* bend that will crack it at the place where it comes in contact with the earth, or take a sharp knife and cut it about half through on the underside at this point. Fasten it by pegs, or crossed sticks, so that this cut or fractured part will stay where you put it, and cover with soil to the depth of about two inches. Set a stick by it, and tie the end of the shoot to it, in an upright position. You will understand that the shoot which you are attempting to root must be left attached to the parent plant. This furnishes life to it while it is forming roots of its own. The break, or cut, partially obstructs the flow of sap,

and a callus will be formed at that portion, and afterwards roots. Let it remain connected with the old plant till you are sure it has rooted well. Then cut off and transplant. This method applies to many of our shrubs which do not sucker freely. It is especially valuable in the propagation of choice Roses.

If you have a greenhouse do not take the plants all out of it in summer. By shading the roof you can make them as comfortable there as they would be outside, if the windows and doors are left open to allow a free circulation of air. The roof can be shaded from inside by using thin cotton cloth which can be tacked to the rafters, or you can splash the glass on the outside with whitewash. Apply with a small combination pump, or from a syringe. I prefer the whitewash to the cloth shading, it being easier to put on, and less expensive. In making it, simply pour boiling water over fresh lime. When freezing weather comes it will be loosened from the glass and can easily be brushed off. Unless some kind of shading is given, the mid-summer sun will very soon scorch your plants.

If you have only a window collection, and there is no veranda or other shaded, sheltered place in which to put them in summer, make a shed for them by setting posts in the ground. Nail strips from post to post, and then tack on lath. Let the lath be about an inch apart. This will shade your plants sufficiently.

Every place ought to have a "summer house" of some kind. It need not be elaborate or expensive to be enjoyable. Set four stout posts in the ground twelve or fourteen feet apart each way. Let them be about eight feet high above the ground. Nail strips from one to the other, at the top, and put other strips across, lattice

fashion. This will give you a good frame. Plant quick growing vines by each post to run up to the roof. They will cover it by the end of June, and you will have a pleasant place to read or sew in. Have a hammock swung there, and a rocking chair, and sometimes take tea or dinner there. It will give additional relish to the meal to eat it "under green branches." It will make it seem like a little, extemporized picnic to the children. And the children will enjoy this rustic structure very much as a "playhouse." If you have boys, set them to work at building it. They will enjoy the work, and it will do them good to get used to handling the saw and hammer.

I have been asked if the reason why plants in iron vases on the lawn are so generally unsatisfactory is because of the material of which the vase is constructed. I answer no. The reason in nine cases out of ten is simply this: The soil is dry. The vase is exposed to the wind and air, consequently evaporation is rapid. The iron absorbs the heat of the sun's rays, and this helps to hasten evaporation. If you will give it the attention it demands—a daily application of water in such quantities that the soil is completely soaked through—you can grow plants well in iron vases. In a short time the vines used will cover the sides of the vase, thus shading it, and checking evaporation somewhat.

Do not try to have too many plants in a small window. One good one—symmetrical, and well developed on all sides—is much more satisfactory to the lover of fine flowers than half a dozen awkward specimens. And that they will be awkward if crowded is a foregone conclusion.

In putting out plants in the garden, choose a cloudy day for it, if possible. Water well when you plant. Shade for a day or two, or till they begin to grow.

Pits for wintering many varieties of plants at the South can be made cheaply. Dig out a place in a well-drained location to the depth of three or four feet. Set up posts at each corner, the two at the north projecting about a foot and a half above the ground; the two at the south about six inches. This will give the top of the pit a slope toward the sun of about the right angle for the glass with which it is covered to get the full benefit of its rays. Cover with glazed sash, hung on hinges at the higher side, or back. In mild weather this sash should be lifted to admit air. Have it made to fit the boarding closely all around. Bank up well to the top of the frame. Cover the glass with matting, or something similar, in cold weather, but remove as soon as the sun comes out. Plants in such a pit will not make good growth, but they will remain in good health, and be ready to make a vigorous growth as soon as spring comes. It is very important that the pit should be well drained. If it is not the plants will mildew or mold, and you will be quite sure to lose many of them. Such a pit would not afford sufficient protection at the North.

Agave Americana is a fine plant for a large vase to stand on the steps leading to the house, or near the path, where something striking and peculiar is desired. The variegated varieties are also attractive for this purpose. They stand the sun well. They can be taken to the cellar for wintering, if you have no greenhouse. If you have a greenhouse, they can be made to do good work in helping to make it attractive in

winter. The Yucca is also an excellent plant for use in vases. So is the New Zealand Flax, with its long, stiff foliage, heavily marked with yellow.

If we would have fine Roses, we must fight for them. The rose-chaffer, the slug, and the aphid will do their best to spoil the crop of flowers, and, if let alone, they will soon destroy every bud, and make the foliage look as if a fire had scorched it. I make liberal applications of the soap insecticide frequently spoken of in the preceding pages, early in the season—before the pests appear, in fact—and find it an easy matter to prevent them from getting a foothold on the plants. "Prevention is better than cure." In applying it, be very sure to have it reach the underside of the leaves. Let someone hold the bushes over in such a manner that the underside of the foliage will present itself favorably, and then give the entire plant a good drenching. Half of the battle consists in getting the start of the insects.

Ferns from pasture land and wood lot can be readily domesticated if one is willing to go to a little trouble in preparing a place for them. Plant them in soil brought from the places where they grew. A wagon load of it will be sufficient to make a good-sized bed. In getting plants, choose the smaller ones, and take them up with considerable soil adhering to their roots. Place them, as fast as lifted, in baskets lined with damp moss, and be careful to see that their roots do not get dry before they are planted. When a Fern root becomes really dry, the plant it is attached to is ruined. Ferns are delicate plants, but they can be transplanted successfully if handled carefully. In choosing a place for them select one that is sheltered

from the hot sunshine. The north side of the house is a good place for the Fern bed.

One objection—in fact, about the only objection that can be urged—against the Lilac, is its tendency to sucker freely. If allowed to have its own way, each old plant soon becomes the center of a thicket. This can easily be prevented if one will apply the hoe vigorously about the old plant, for a few minutes, once a week, during the season of growth. Shave off the sprouts close to the ground, and keep them shaved off, and you will have no trouble in keeping your Lilaes under control.

Nearly all smooth-leaved plants are greatly benefited by applications of water to their foliage, provided the sun is not allowed to shine on them while wet. But plants having hairy foliage, like the Gloxinia and the Rex Begonia, are almost invariably injured by the application of water to their leaves. Bear this in mind, and be governed in showering your plants by the peculiarities of their foliage.

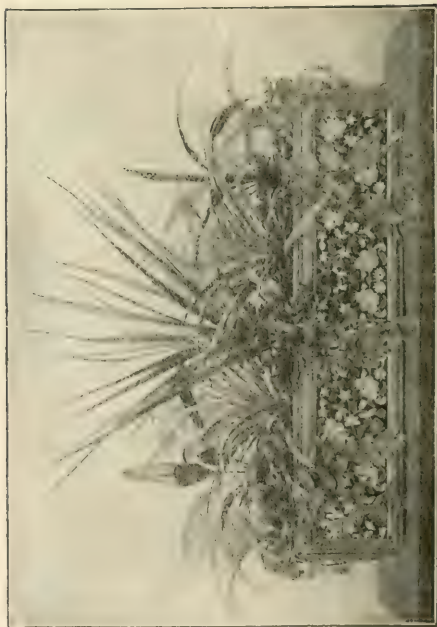


FIG 72—A TASTEFUL WINDOW BOX

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